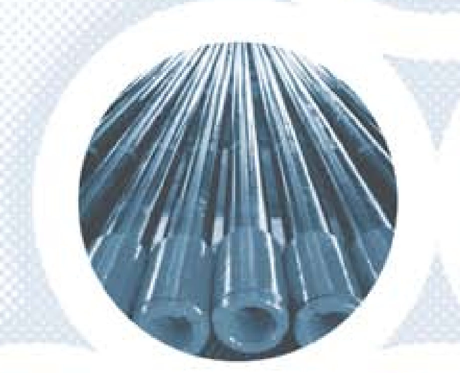


特殊螺纹接头油套管

Premium Connection
Tubing and Casing



产品手册

Product Catalog

www.baosteel.com



宝山钢铁股份有限公司
BAOSHAN IRON & STEEL CO., LTD.

目录 Contents

简 介

Introduction

宝山钢铁股份有限公司（简称"宝钢股份"）是中国最大、最现代化的钢铁联合企业。宝钢股份以其诚信、人才、创新、管理、技术诸方面综合优势，奠定了在国际钢铁市场上世界级钢铁联合企业的地位。《世界钢铁业指南》评定宝钢股份在世界钢铁行业的综合竞争力为前三名，认为也是未来最具发展潜力的钢铁企业。

公司钢管产业拥有50年的钢管制造经验，包括中小口径热轧无缝管、特种合金无缝钢管、冷轧和冷拔无缝钢管、中大口径高频电阻焊管、大口径直缝埋弧焊管等产品，集科研、产品开发、加工检验、产品销售于一体，实行从炼铁、炼钢（转炉、电炉）、热轧钢卷、厚板、条钢到制管及管加工的一贯制质量管理，具有特大型钢铁联合企业综合生产的规模化优势，目前已成为中国包括无缝、焊管的大型精品钢管研发生产基地。

公司以其先进技术、设备、管理、良好的信誉，保证提供高质量的产品和服务，令客户满意。公司全体员工衷心感谢您对我们产品的关注和使用，竭诚欢迎您对公司产品和服务提出宝贵意见。

如果您所需产品的品种、规格或者特殊要求在本手册中未覆盖，请与我们联系，我们将予以即时答复。



Baoshan Iron & Steel Co., Ltd. ("Baosteel Co., Ltd." for short) is the largest and most modernized integrated steelmaker in China. Baosteel Co., Ltd. has secured its standing as a world class integrated steelmaker in the international steel market with its comprehensive strengths in credit standing, talent, innovation, management and technology, etc. World Steel Dynamics (WSD) ranks Baosteel Co., Ltd. within the top 3 places in terms of comprehensive competitiveness in the global steel industry, and it is believed to be the most promising player in the steel world.

the company's tube sector has 50 years-long experience in steel tube production. Its products include medium and small diameter hot-rolled seamless tube, specially alloyed seamless tube, cold-rolled and cold drawing seamless tube, medium and large diameter high frequency ERW pipe, large diameter SAWL pipe, etc. It integrates R&D, product development, processing and inspection, products sales, etc., implements the through-going quality control from iron-making, steel-making (BOF, EAF), hot-rolled coil, heavy plate, bar steel to tube making and throughout-process quality control, is superior in scale with regard to the comprehensive production of the giant steel complex and has become a large-sized premium tube R&D and manufacture base for both seamless tube and welded pipes.

With its leading technologies, equipment, management and favorable reputation, customers are ensured to enjoy the quality products and satisfactory service. We thank you very much for your attention and use of our products and warmly welcome your comments and suggestions.

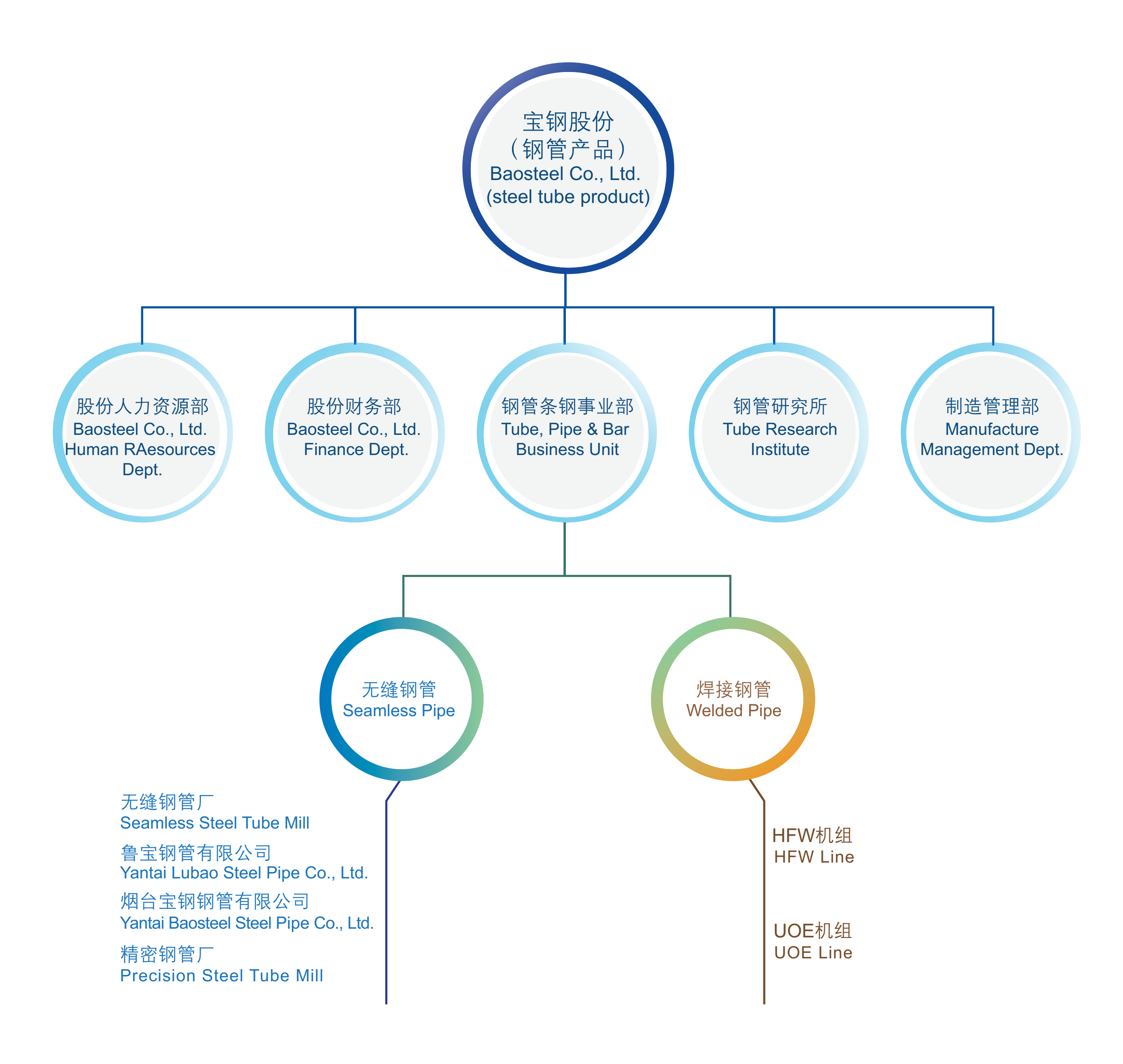
We should be glad to give you a prompt response, if you contact us for any things about grade, specification or special requirement beyond this catalog.



工厂及分布
Facilities and Sites

宝钢钢管组织机构图：

Organization chart of Baosteel steel tube：

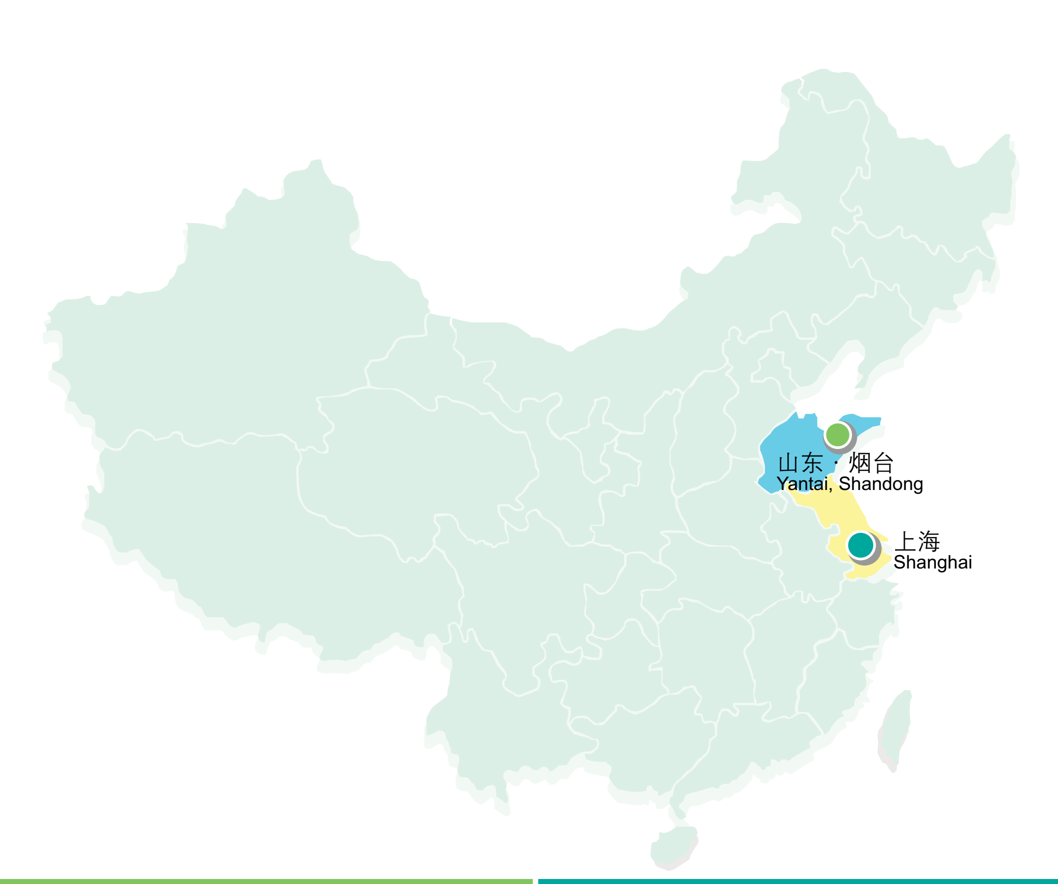


生产机组及规格范围

Baosteel steel tube manufacturing lines and range of sizes

宝钢钢管生产机组及规格范围：

Baosteel steel tube production lines and range of specifications:



山东 Shandong	上海 Shanghai	
• 烟台鲁宝钢管有限责任公司 Yantai Lubao Baosteel Steel Pipe Co., Ltd.	• 宝钢股份钢管厂 Baosteel Co., Ltd. Steel Tube Mill	• 特殊钢事业部精密钢管厂 Special Steel Multi-division Precision Steel Tube Mill
• 烟台宝钢钢管有限责任公司 Yantai Baosteel Steel Pipe Co., Ltd.	• 钢管研究所 Steel Tube Research Institute	• 特殊钢事业部钢管厂 Special Steel Multi-division Steel Tube Mill

宝钢质量保证体系及一体化优势

Integrated advantages of Baosteel Quality Guarantee System

宝钢股份采用国际先进的质量管理体系，主要产品均获得国际权威机构认可。公司获得了英国BSI公司颁发的质量、环保和安全综合管理体系证书IMS（ISO 9001、ISO/TS 16949、ISO 14001、ISO 18001）、华夏认证中心（CCCI）颁发的ISO14001环境管理体系证书以及国家质量监督检验检疫总局颁发的完善计量检测体系证书。

钢管厂有关产品获得的认可证书主要有：

＊油管、套管、钻杆和管线管等油田用管材获得美国石油协会API颁发的5CT、5D、规范7、5L会标使用许可证；

Baosteel has been granted the IMS certificates for quality, safety, environment (ISO 9001, ISO/TS 16949, ISO 14001 and ISO 18001) by British Standard Institution (BSI), the certificate of ISO14001 Environmental Management System by China Certification Center, Inc., and the certificate for perfecting the measuring and detecting System by the State General Administration of Quality Supervision and Inspection.

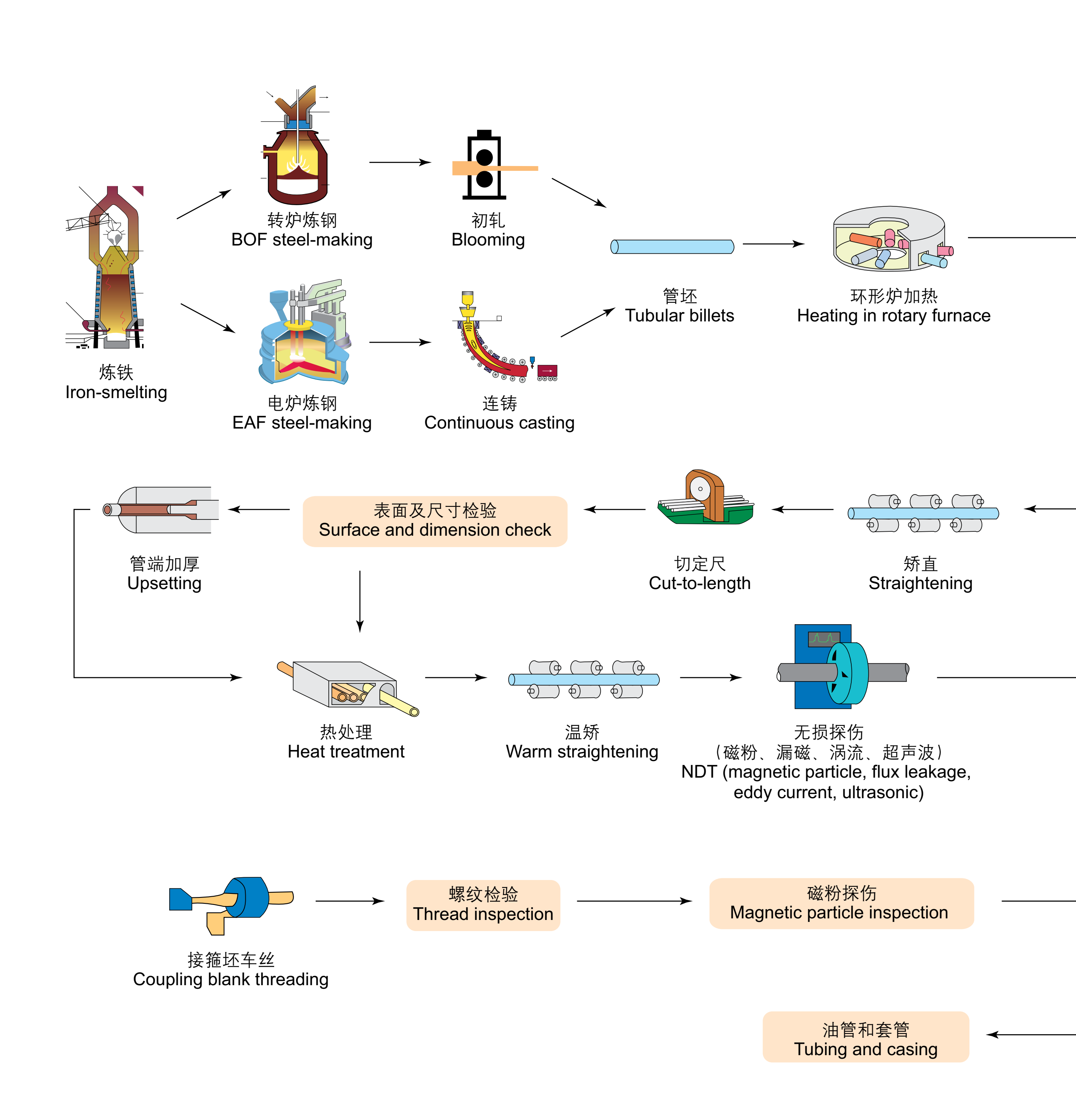
And its steel tube and pipe products have got the following major certificates:

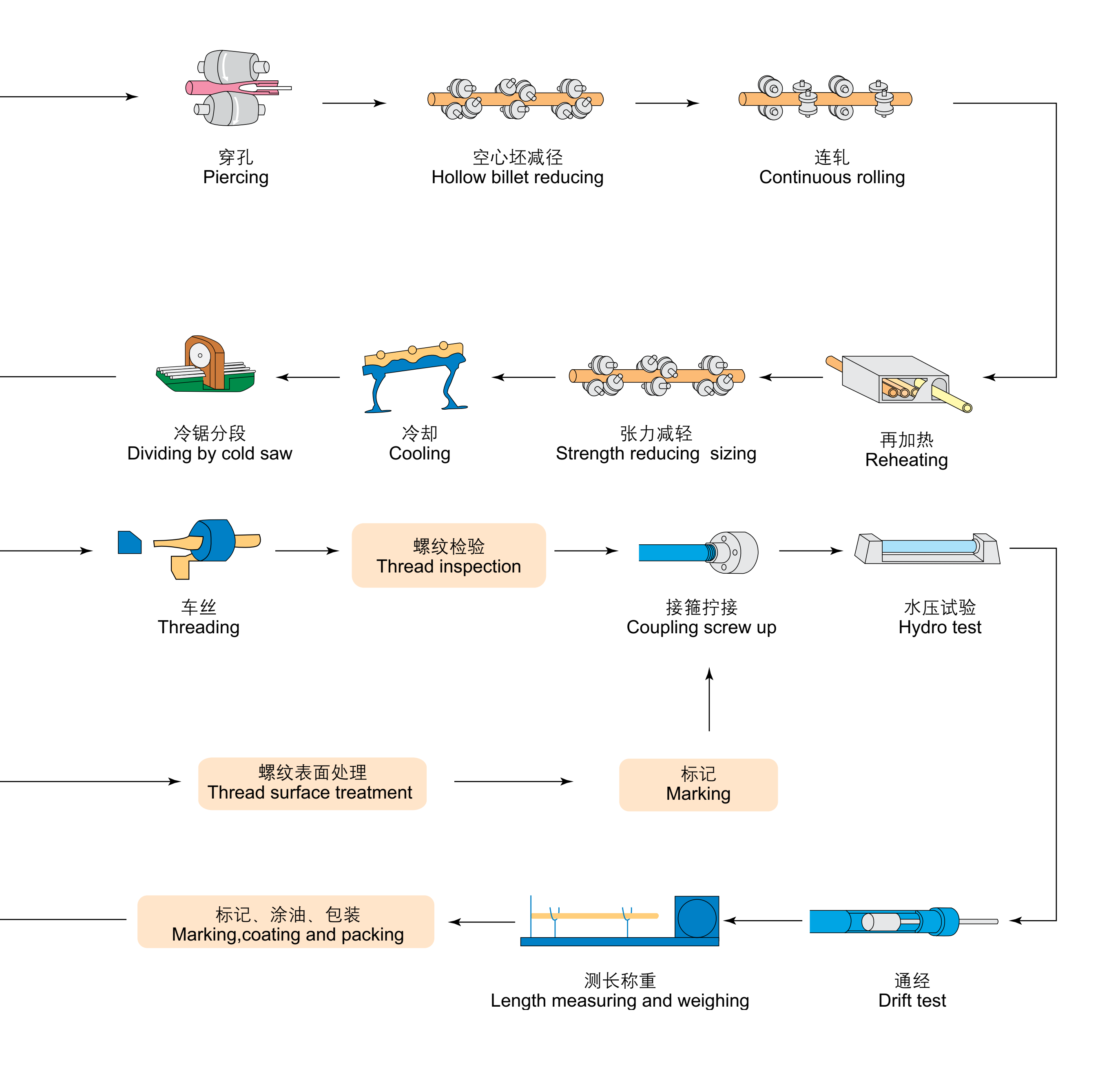
＊ API's 5CT, 5D, spec.7 and 5L monograms licensed for the use in such tubular products such as tubing, casing, drill pipe and line pipe for oil fields ：



产品制作工艺流程

Process flow chart




穿孔
Piercing
空心坯减径
Hollow billet reducing
连轧
Continuous rolling
再加热
Reheating
张力减轻
Strength reducing sizing
冷却
Cooling
冷锯分段
Dividing by cold saw
车丝
Threading
螺纹检验
Thread inspection
接箍拧接
Coupling screw up
水压试验
Hydro test
螺纹表面处理
Thread surface treatment
标记
Marking
通经
Drift test
测长称重
Length measuring and weighing
标记、涂油、包装
Marking,coating and packing

宝钢BG系列特殊螺纹接头油套管产品

Baosteel BG Premium Connection Tubing and Casing Product







Baosteel BG Premium Connection Tubing and Casing Product

宝钢 BG 系列特殊螺纹油套管产品独特的技术、质量和服务特点。

* 雄厚的科研力量和先进制造设备的支持。通过计算机模拟仿真和全尺寸实物试验，对产品设计持续的改进和研究，为用户提供更安全更高效的油套管；从炼钢到轧制，直到螺纹精密加工，全部按照 ISO9001 的质量管理体系和 API SPEC 5CT、API SPEC 5B 质量要求进行质量控制；螺纹加工采用先进的数控机床。

* 令用户完全信赖的产品可靠性。产品完全满足 API 要求的抗内压强度、抗拉强度和承受弯曲 + 拉伸 + 内压复合载荷的性能要求；按照 API RP 5C5、TGRC1、TGRC2 和 TGRC3 标准等苛刻条件进行全面试验，保证产品性能。

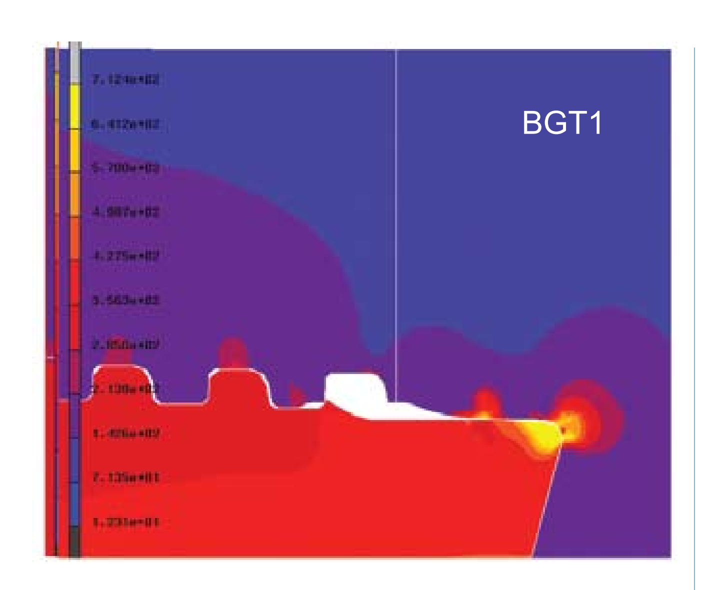
* 以用户满意为宗旨的服务目标和建全的售前、售后服务体系。宝钢股份公司强大的技术力量和对油田各种使用条件长久的经验积累，能协助用户完成优化的油套管井身设计，提供相应的技术咨询，并具备油套管管柱的配套供货能力；派出专业人员到现场协助指导井队对 BG 系列油套管的吊卸、上扣和下管作业。

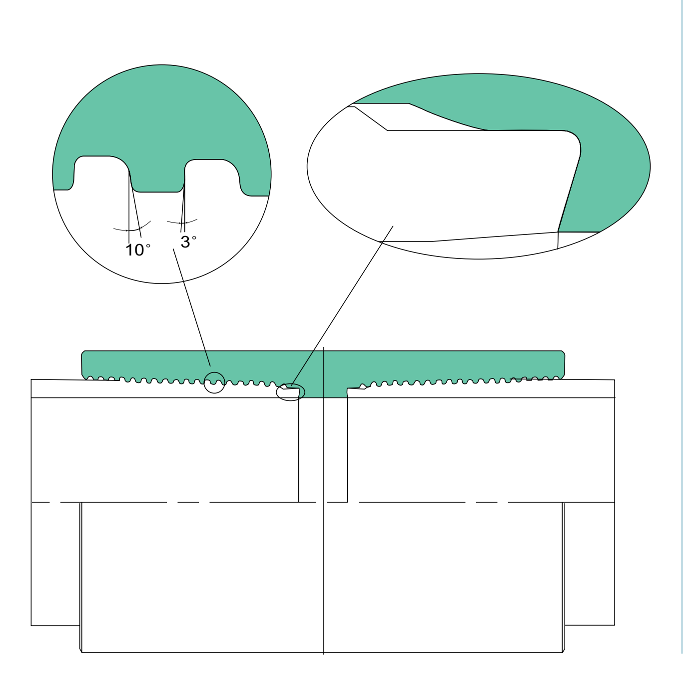
Baosteel BG Premium Connection Tubing and Casing Product Characterized By Original Technology, High Quality & Good Service

* With the strong support of R&D and sophisticated manufacturing facilities, the safer and more efficient oil tubing and casing are produced for users, by means of computerized simulation and full size real product tests dedicated to the continued improvement and research of product design. The whole process flow from steel-making to steel rolling and to precision thread processing is all under the quality control as specified by ISO 9001 quality control system and API SPEC 5CT, API SPEC 5B quality requirements. And the thread processing is carried out with the state-of-the-art NC machines.
* The highly reliable products can completely meet API's requirements for burst strength, tensile strength and the composite load from bending + stretching + internal pressure. The products' performance is ensured by all the tests in the rigorous conditions just as specified by API RP 5C5 TGRC1, TGRC2 and TGRC3 standards.
* Baosteel Co., Ltd. takes the customers' satisfaction as goal and boasts the sound and complete service system covering before-sales and after-sales services. Its powerful technical strength and long-accumulated experience in various service conditions of oil fields are a guarantee for the users to optimize the design of oil tubing and casing well bore, and allow itself to provide technical consultancy, supply the matching column jacket for oil tubing and casing, and send its supervisors to job-sites for supervising the drilling crew for the lifting, unloading, makeup and operation of BG series oil tubing and casing.

产品特点及性能指标

Product features and performances





BGT1 油管

BGT1 特殊螺纹接头油管设计特点：

1、带接箍的螺纹接头；

2、金属与金属之间的主密封采用柱面、锥面、球面密封结构形式；

3、扭矩台肩有止扣和辅助密封性能，优化的逆向角度配合公差；

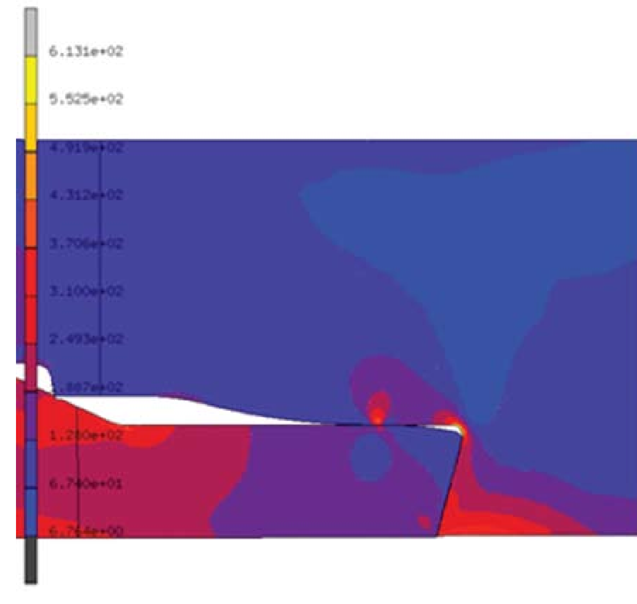
4、内平光滑结构；

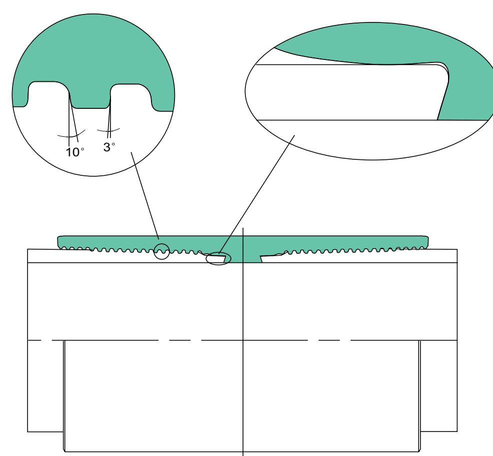
5、采用改进的标准 API 偏梯形螺纹形式，齿顶和齿底平行于管体轴线，偏梯形螺纹每英寸 8 牙；

BGT1 oil tubing

Design features of BGT1 premium connection:

1. Threaded connection with coupling;
2. Metal-metal main seal adopts cylindrical, conical and spherical seal structure type;
3. Torque shoulder with the functions of optimized make-up property and auxiliary sealing, optimized inverted angle;
4. Internal flushstructure;
5. Improved API buttress thread is adopted, crest and bottom of thread are parallel to axis, and the buttress thread is 8 teeth per inch.





BGC 套管

BGC 特殊螺纹接头套管设计特点：

1、带接箍的螺纹接头；
2、金属与金属之间的主密封采用柱面、球面密封结构形式；
3、扭矩台肩有止扣和辅助密封性能，优化的逆向角度配合公差；
4、内平光滑结构；
5、采用标准 API 偏梯形螺纹形式，每英寸 5 牙；

BGC casing

Design features of BGC premium connection:

1. Threaded connection with coupling;
2. Metal-metal main seal adopts cylindrical and spherical seal structure type;
3. Torque shoulder with the functions of optimized make-up property and auxiliary seal, optimized inverted angle;
4. Internal structure;
5. Standard API buttress thread is adopted and the buttress thread is 5 teeth per inch.

◆◆◆钢级表：
Steel grade:

钢级 Steel grade	
55	J55⊙, K55⊙, BG55, BG55S|SS
65	M65⊙, BG65
80	L80-1⊙, L80-9Cr⊙, L80-13Cr⊙, N80⊙, BG80S|SS, BG80S|SS-3Cr, BG80T|TT
90	C90-1⊙, BG9Cr-90, BG13Cr-90, BG90S|SS, BG90S|SS-3Cr, BG90T|TT
95	C95⊙, T95⊙, BG9Cr-95, BG13Cr-95, BG95S|SS, BG95S|SS-3Cr, BG95T|TT
110	P110⊙, BG9Cr-110, BG13Cr-110, BG110S|SS, BG110S|SS-3Cr, BG110T|TT
125	Q125⊙
140	BG140
150	BG150

⊙API钢级
⊙API grade

宝钢特殊螺纹接头油管使用性能
Performance of Baosteel premium connection tubing

◆◆◆宝钢特殊螺纹接头油管使用性能（一）：
Performance of Baosteel premium connection tubing (I):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		抗挤强度(psi) Collapse pressure (psi)								
in	mm	lb/ft	in.	mm	55	65	80	90	95	110	125	140	150
2 3/8	60.33	4.60	0.190	4.83	8100	9570	11780	13250	13990	16130	17900	19580	20660
		5.80	0.254	6.45	10510	12420	15280	17190	18150	21010	23880	26740	28650
		6.60	0.295	7.49	11970	14140	17410	19580	20670	23930	27200	30460	32640
		7.35	0.336	8.53	13360	15790	19430	21860	23070	26720	30370	34010	36440
2 7/8	73.03	6.40	0.217	5.51	7680	9070	11160	12390	12940	14550	16080	17490	18400
		7.80	0.276	7.01	9540	11280	13890	15620	16480	19090	21700	24300	26040
		8.60	0.308	7.82	10530	12440	15300	17220	18160	21050	23910	26780	28700
		9.35	0.340	8.64	11470	13550	16680	18760	19820	22930	26070	29200	31290
		10.50	0.392	9.96	12960	15320	18850	21210	22380	25920	29450	32970	35330
		11.50	0.440	11.18	14270	16860	20750	23340	24640	28530	32420	36300	38890
3 1/2	88.90	9.20	0.254	6.45	7400	8750	10530	11570	12070	13530	14890	16150	16950
		10.20	0.289	7.34	8330	9850	12120	13640	14390	16670	18940	20770	21950
		12.70	0.375	9.52	10530	12440	15310	17220	18180	21050	23920	26790	28700
		14.30	0.430	10.92	11850	14010	17240	19400	20470	23710	26950	30180	32330
		15.50	0.476	12.09	12930	15280	18810	21160	22330	25860	29380	32910	35260
		17.00	0.530	13.46	14140	16710	20570	23140	24430	28280	32130	35990	38550
4	101.60	9.50	0.226	5.74	5110	6260	6590	7080	7300	7910	8390	8730	8910
		13.20	0.330	8.38	8330	9840	12110	13630	14380	16650	18910	20740	21920
		16.10	0.415	10.54	10230	12090	14880	16740	17660	20450	23250	26040	27900
		18.90	0.500	12.70	12030	14220	17500	19690	20780	24060	27340	30630	32810
		22.20	0.610	15.49	14210	16800	20670	23260	24550	28420	32310	36190	38770
4 1/2	114.30	12.60	0.271	6.88	5720	6980	7500	8120	8410	9210	9890	10450	10770
		15.20	0.337	8.56	7620	9010	11090	12220	12770	14350	15830	17220	18110
		17.00	0.380	9.65	8510	10050	12370	13920	14690	17010	19330	21650	23190
		18.90	0.430	10.92	9500	11230	13820	15550	16410	19010	21610	24200	25930
		21.50	0.500	12.70	10860	12840	15800	17780	18770	21730	24690	27650	29630
		23.70	0.560	14.22	11980	14160	17430	19610	20690	23960	27240	30510	32690

◆◆◆宝钢特殊螺纹接头油管使用性能（二）：
Performance of Baosteel premium connection tubing (II):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		最小内屈服压力（psi） Minimum internal yield strength (psi)								
in	mm	lb/ft	in.	mm	55	65	80	90	95	110	125	140	150
2 3/8	60.33	4.60	0.190	4.83	7700	9100	11200	12600	13310	15400	17500	19600	21000
		5.80	0.254	6.45	10290	12170	14970	16840	17770	20590	23400	26200	28070
		6.60	0.295	7.49	11960	14130	17390	19560	20640	23910	27170	30430	32610
		7.35	0.336	8.53	13620	16090	19810	22280	23510	27230	30950	34660	37140
2 7/8	73.03	6.40	0.217	5.51	7260	8590	10570	11890	12540	14530	16510	18490	19810
		7.80	0.276	7.01	9240	10920	13440	15120	15960	18480	21000	23520	25200
		8.60	0.308	7.82	10310	12190	15000	16870	17800	20620	23440	26250	28120
		9.35	0.340	8.64	11380	13450	16560	18630	19670	22770	25870	28970	31040
		10.50	0.392	9.96	13120	15510	19090	21470	22670	26250	29830	33410	35790
		11.50	0.440	11.18	14730	17410	21430	24100	25450	29460	33480	37500	40170
3 1/2	88.90	9.20	0.254	6.45	6990	8260	10160	11430	12060	13970	15880	17780	19050
		10.20	0.289	7.34	7950	9390	11560	13000	13730	15900	18060	20230	21680
		12.70	0.375	9.52	10310	12190	15000	16870	17800	20620	23440	26250	28120
		14.30	0.430	10.92	11830	13980	17200	19350	20420	23650	26880	30100	32250
		15.50	0.476	12.09	13090	15470	19040	21420	22610	26180	29750	33320	35700
4	101.60	17.00	0.530	13.46	14580	17230	21200	23850	25170	29150	33130	37100	39750
		9.50	0.226	5.74	5440	6430	7910	8900	9390	10880	12360	13840	14830
		13.20	0.330	8.38	7940	9380	11550	12990	13710	15880	18050	20210	21660
		16.10	0.415	10.54	9990	11800	14530	16340	17250	19970	22700	25420	27230
		18.90	0.500	12.70	12030	14220	17500	19690	20780	24060	27340	30630	32810
		22.20	0.610	15.49	14680	17350	21350	24020	25350	29360	33360	37340	40030
4 1/2	114.30	12.60	0.271	6.88	5800	6850	8430	9490	10010	11590	13170	14750	15810
		15.20	0.337	8.56	7210	8520	10480	11800	12450	14420	16380	18350	19660
		17.00	0.380	9.65	8130	9610	11820	13300	14040	16260	18470	20690	22170
		18.90	0.430	10.92	9200	10870	13380	15050	15880	18390	20900	23410	25080
		21.50	0.500	12.70	10690	12640	15560	17500	18470	21390	24310	27220	29170
		23.70	0.560	14.22	11980	14160	17420	19600	20680	23960	27220	30490	32670

◆◆◆**宝钢特殊螺纹接头油管使用性能（三）：**
Performance of Baosteel premium connection tubing (III):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		管体屈服强度（1,000 lbs） Pipe body yield strength (1,000 lbs)								
in	mm	lb/ft	in.	mm	55	65	80	90	95	110	125	140	150
2 3/8	60.33	4.60	0.190	4.83	72	85	104	117	124	143	163	183	196
		5.80	0.254	6.45	93	110	135	152	161	186	212	237	254
		6.60	0.295	7.49	106	125	154	173	183	212	241	270	289
		7.35	0.336	8.53	118	140	172	194	204	237	269	301	323
2 7/8	73.03	6.40	0.217	5.51	100	118	145	163	172	199	227	254	272
		7.80	0.276	7.01	124	146	180	203	214	248	282	315	338
		8.60	0.308	7.82	137	161	199	224	236	273	310	348	373
		9.35	0.340	8.64	149	176	217	244	257	298	338	379	406
		10.50	0.392	9.96	168	199	245	275	290	336	382	428	459
		11.50	0.440	11.18	185	219	269	303	320	370	421	471	505
3 1/2	88.90	9.20	0.254	6.45	142	168	207	233	246	285	324	363	389
		10.20	0.289	7.34	160	189	233	262	277	321	364	408	437
		12.70	0.375	9.53	202	239	295	331	350	405	460	515	552
		14.30	0.430	10.92	228	270	332	373	394	456	518	581	622
		15.50	0.476	12.09	249	294	362	407	430	497	565	633	678
		17.00	0.530	13.46	272	321	396	445	470	544	618	692	742
4	101.60	9.50	0.226	5.74	147	174	214	241	255	295	335	375	402
		13.20	0.330	8.38	209	247	304	342	361	419	476	533	571
		16.10	0.415	10.54	257	304	374	421	444	514	584	654	701
		18.90	0.500	12.70	302	357	440	495	522	605	687	770	825
		22.20	0.610	15.49	357	422	520	585	617	715	812	910	974
		12.60	0.271	6.88	198	234	288	324	342	396	450	504	540
4 1/2	114.30	13.50	0.290	7.37	211	249	307	345	364	422	479	537	575
		15.20	0.337	8.56	242	286	353	397	419	485	551	617	661
		17.00	0.380	9.65	271	320	393	443	467	541	615	689	738
		18.90	0.430	10.92	302	357	440	495	522	605	687	770	825
		21.50	0.500	12.70	346	408	503	565	597	691	785	880	942
		23.70	0.560	14.22	381	451	555	624	659	762	866	970	1040

宝钢特殊螺纹接头套管使用性能
Performance of Baosteel premium connection casing

◆◆◆宝钢特殊螺纹接头套管使用性能（一）：
Performance of Baosteel premium connection casing (I):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		抗挤强度(psi) Collapse pressure (psi)											
in	mm	lb/ft	in.	mm	55	65	65T	80	80T	90	95	110	110T	125	140	150
5	127.00	15.00	0.296	7.52	5560	6280	7410	7250	8560	7840	8110	8850	10440	9480	9980	10260
		18.00	0.362	9.19	7390	8730	10300	10500	12390	11530	12010	13470	15890	14820	16070	16860
		21.40	0.437	11.10	8770	10370	12240	12760	15060	14360	15160	17550	20710	19940	22330	23930
		23.20	0.478	12.14	9510	11240	13260	13830	16320	15560	16430	19020	22440	21620	24210	25940
		24.10	0.500	12.70	9900	11700	13810	14400	16990	16200	17100	19800	23360	22500	25200	27000
5 1/2	139.70	15.50	0.275	6.98	4040	4470	5270	4990	5890	5260	5370	5630	6640	5890	6170	6320
		17.00	0.304	7.72	4910	5510	6500	6280	7410	6740	6930	7480	8830	7890	8170	8290
		20.00	0.361	9.17	6610	7540	8900	8830	10420	9630	10020	11100	13100	12090	12950	13480
		23.00	0.415	10.54	7680	9070	10700	11160	13170	12380	12940	14550	17170	16060	17480	18390
6 5/8	168.28	24.00	0.352	8.94	4560	5090	6010	5760	6800	6140	6310	6730	7940	7020	7180	7340
		28.00	0.417	10.59	6170	7010	8270	8170	9640	8880	9210	10160	11990	11000	11710	12130
		32.00	0.475	12.06	7320	8650	10210	10320	12180	11330	11810	13220	15600	14540	15750	16510
7	177.80	23.00	0.317	8.05	3270	3550	4190	3830	4520	4030	4140	4440	5240	4650	4760	4780
		26.00	0.362	9.19	4320	4810	5680	5410	6380	5740	5870	6230	7350	6450	6690	6870
		29.00	0.408	10.36	5410	6100	7200	7020	8280	7580	7830	8530	10070	9110	9560	9800
		32.00	0.453	11.51	6470	7360	8680	8610	10160	9380	9750	10780	12720	11720	12530	13020
		35.00	0.498	12.65	7270	8590	10140	10180	12010	11170	11650	13020	15360	14320	15490	16230
		38.00	0.540	13.72	7830	9250	10920	11390	13440	12820	13440	15140	17860	16750	18260	19230

◆◆◆宝钢特殊螺纹接头套管使用性能（二）：
Performance of Baosteel premium connection casing (II):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		最小内屈服压力（psi） Minimum internal yield strength (psi)								
in	mm	lb/ft	in.	mm	55	65	80	90	95	110	125	140	150
5	127	15.00	0.296	7.52	5700	6730	8290	9320	9840	11400	12950	14500	15540
		18.00	0.362	9.19	6970	8240	10140	11400	12030	13940	15840	17740	19010
		21.40	0.437	11.10	8410	9940	12240	13770	14530	16820	19120	21410	22940
		23.20	0.478	12.14	9200	10870	13380	15060	15890	18400	20920	23420	25100
		24.10	0.500	12.70	9630	11380	14000	15750	16630	19250	21880	24500	26250
5 1/2	139.70	15.50	0.275	6.98	4810	5690	7000	7880	8310	9630	10940	12250	13130
		17.00	0.304	7.72	5320	6290	7740	8710	9190	10640	12090	13540	14510
		20.00	0.361	9.17	6320	7470	9190	10340	10910	12640	14360	16080	17230
		23.00	0.415	10.54	7260	8580	10560	11880	12540	14520	16510	18490	19810

◆◆◆宝钢特殊螺纹接头套管使用性能（二）:
Performance of Baosteel premium connection casing (II):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		最小内屈服压力（psi） Minimum internal yield strength (psi)								
in	mm	lb/ft	in.	mm	55	65	80	90	95	110	125	140	150
6 5/8	168.28	24.00	0.352	8.94	5110	6040	7440	8370	8830	10230	11620	13020	13950
		28.00	0.417	10.59	6060	7160	8810	9910	10460	12120	13770	15420	16520
		32.00	0.475	12.06	6900	8160	10040	11290	11910	13800	15680	17570	18820
7	177.80	23.00	0.317	8.05	4360	5150	6340	7130	7530	8720	9910	11100	11890
		26.00	0.362	9.19	4980	5880	7240	8150	8590	9960	11310	12670	13580
		29.00	0.408	10.36	5610	6630	8160	9180	9690	11220	12750	14280	15300
		32.00	0.453	11.51	6230	7360	9060	10190	10760	12460	14160	15860	16990
		35.00	0.498	12.65	6850	8090	9960	11210	11830	13700	15560	17430	18680
		38.00	0.540	13.72	7430	8780	10800	12150	12830	14850	16880	18900	20250

◆◆◆宝钢特殊螺纹接头套管使用性能（三）:
Performance of Baosteel premium connection casing (III):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		管体屈服强度(×1000 lbs) Pipe body yield strength (×1,000 lbs)								
in	mm	lb/ft	in.	mm	55	65	80	90	95	110	125	140	150
5	127	15.00	0.296	7.52	241	284	350	394	416	481	547	612	656
		18.00	0.362	9.19	290	343	422	475	501	580	659	738	791
		21.40	0.437	11.10	345	407	501	564	595	689	783	877	940
		23.20	0.478	12.14	373	441	543	611	645	747	849	951	1019
		24.10	0.500	12.70	389	459	565	636	672	778	884	990	1060
5 1/2	139.70	15.50	0.275	6.98	248	293	361	406	429	497	564	632	677
		17.00	0.304	7.72	273	323	397	447	471	546	620	695	744
		20.00	0.361	9.17	321	379	466	525	554	641	729	816	874
		23.00	0.415	10.54	365	431	530	597	630	729	829	928	994
6 5/8	168.30	24.00	0.352	8.94	382	451	555	624	659	763	867	971	1041
		28.00	0.417	10.59	447	529	651	732	773	895	1017	1139	1220
		32.00	0.475	12.06	505	597	734	826	872	1010	1147	1285	1377
7	177.80	23.00	0.317	8.05	366	433	532	599	632	732	832	932	998
		26.00	0.362	9.19	415	491	604	679	717	830	944	1057	1132
		29.00	0.408	10.36	465	549	676	760	803	929	1056	1183	1267
		32.00	0.453	11.51	512	606	745	839	885	1025	1165	1304	1398
		35.00	0.498	12.65	559	661	814	916	966	1119	1272	1424	1526
		38.00	0.540	13.72	603	712	877	986	1040	1206	1370	1534	1644

◆◆◆宝钢特殊螺纹接头套管使用性能（四）:
Performance of Baosteel premium connection casing (IV):

尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		接头连接屈服强度（1,000 lbs） Joint strength (1,000 lbs)											
in	mm	lb/ft	in.	mm	J55	K55	65	L80-1和80抗硫钢级 L80-1 and 80 S resistant grade	80	90	95	110抗硫钢级 110 S resistant grade	110	125	140	150
5	127.00	15.00	0.296	7.52	293	359	334	379	396	404	424	473	503	548	610	651
		18.00	0.362	9.19	353	432	402	457	477	487	512	571	606	661	735	785
		21.40	0.437	11.10	403	510	456	510	537	537	564	623	671	725	805	859
		23.20	0.478	12.14	403	510	456	510	537	537	564	623	671	725	805	859
		24.10	0.500	12.70	403	510	456	510	537	537	564	623	671	725	805	859
5 1/2	139.70	15.50	0.275	6.98	300	366	342	389	406	415	436	487	517	564	627	670
		17.00	0.304	7.72	329	402	376	428	446	456	480	536	568	620	690	736
		20.00	0.361	9.17	387	472	442	503	524	536	563	629	667	728	810	865
		23.00	0.415	10.54	435	537	493	550	580	580	609	673	724	783	869	927
6 5/8	168.28	24.00	0.352	8.94	453	548	518	592	615	633	665	744	786	860	958	1023
		28.00	0.417	10.59	531	643	607	693	721	742	780	872	922	1008	1123	1199
		32.00	0.475	12.06	599	725	685	783	814	837	880	984	1040	1138	1267	1353
7	177.80	23.00	0.317	8.05	432	522	494	565	588	605	636	712	752	823	917	979
		26.00	0.362	9.19	490	592	561	641	667	687	722	808	853	934	1040	1110
		29.00	0.408	10.36	548	662	628	718	746	768	808	904	955	1045	1164	1243
		32.00	0.453	11.51	605	730	692	791	823	847	891	997	1053	1153	1283	1370
		35.00	0.498	12.65	657	797	745	833	876	876	920	1017	1096	1183	1314	1402
		38.00	0.540	13.72	657	832	745	833	876	876	920	1017	1096	1183	1314	1402

宝钢特殊螺纹附件
Baosteel premium connection accessories

◆◆◆宝钢特殊螺纹转换接头
Premium connection cross-over joint

特殊螺纹转换接头设计特点：

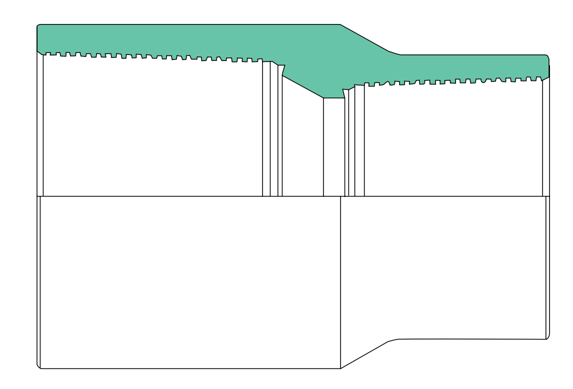
1、采用接箍变径或变扣方式，转换接头两端皆为内螺纹；

2、螺纹和密封表面作镀铜处理；

3、精密数控机床制造。

The design features of the premium connection cross-over joint are as follows:

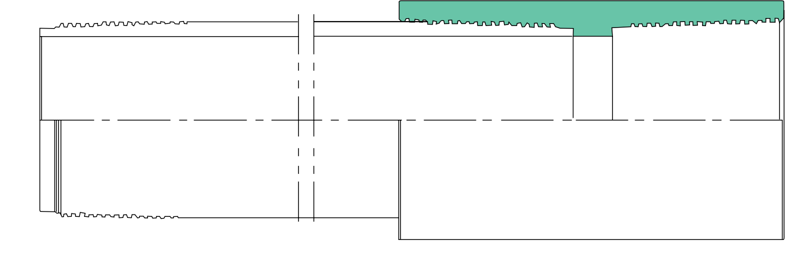
1. Alternative coupling diameter or thread change are adopted, with female threads in both ends;
2. Thread and seal plane are copper plated;
3. Manufactured by precision NC machine.



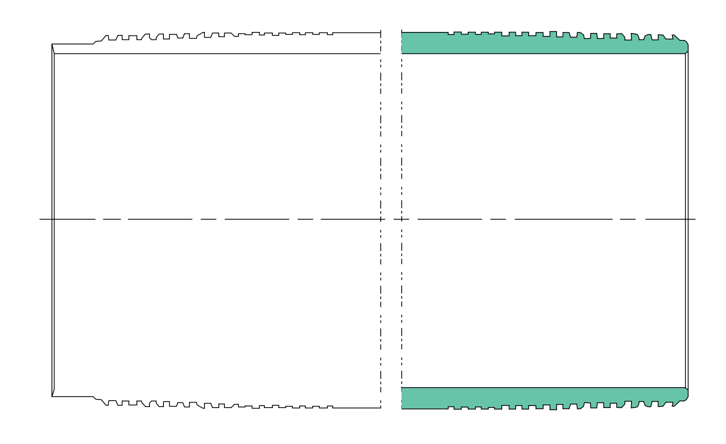
◆◆◆宝钢特殊螺纹接头短节
Premium connection pup joint

特殊螺纹短节设计特点：
1、用一端公扣，另一端拧接箍形式；
2、接箍螺纹和密封表面作镀铜处理；
3、短节长度按用户合同要求；
4、精密数控机床制造。

The design features of the premium connection pup joint are as follows:
1. The design features of the premium connection cross-over joint are as follows;
2. Coupling thread and seal are copper plated;
3. Pup joint lengths are made to order;
4. Manufactured by precision NC machine.



◆◆◆宝钢特殊螺纹接头悬挂短节
Premium connection suspension joint



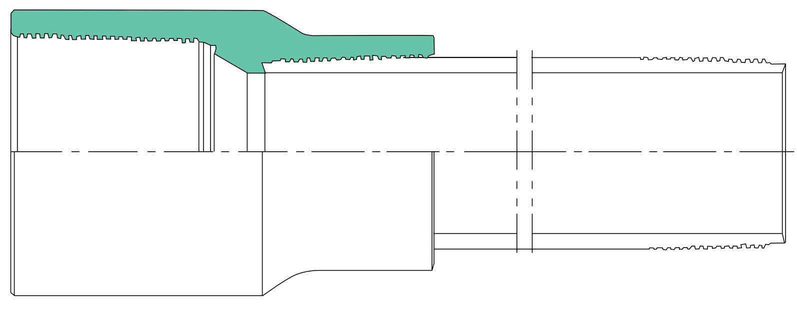
特殊螺纹悬挂短节设计特点：
1、两端均采用公螺纹形式；
2、悬挂短节螺纹形式，一端为宝钢特殊螺纹结构（图左端）。另一端为用户要求螺纹结构，可以是API螺纹或平端（图右端）;
3、悬挂短节长度满足用户要求；
4、精密数控机床制造。

The design features of the premium connection suspension joint are as follows:
1. Pin-threads are used for both ends;
2. Thread type: Baosteel premium connection thread structure is used for one end (see left side of the sketch), while the thread structure to order is used for other end, or API thread or plain end (right side of the sketch);
3. Suspension joint lengths are made to order;
4. Manufactured by precision NC machine.

◆◆◆宝钢特殊螺纹接头转换短节
Premium connection X-over pup joint

特殊螺纹转换短节设计特点：
1、采用接箍变径方式；
2、接箍螺纹和密封表面作镀铜处理；
3、短节长度满足用户要求；
4、精密数控机床制造。

The design features of the premium connection X-over pup joint are as follows:
1. Alternative coupling diameter;
2. Coupling thread and seal are copper plated;
3. Pup joint lengths are made to order;
4. Manufactured by precision NC machine.



产品规格表
Specified sizes

宝钢特殊螺纹接头油管表
Table of Baosteel premium connection tubing

管体 Pipe body					接箍 Coupling			钢级 Steel grade								
尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		外径 Outside diameter		长度 Length									
in	mm	lb/ft	in.	mm	in.	mm	mm	55	65	80	90	95	110	125	140	150
2 3/8	60.33	4.60	0.190	4.83	2.845	73.03	126.20	#	#	#	#	#	#	#	#	#
		5.80	0.254	6.45				#	#	#	#	#	#	#	#	#
		6.60	0.295	7.49				#	#	#	#	#	#	#	#	#
		7.35	0.336	8.53				#	#	#	#	#	#	#	#	#
2 7/8	73.03	6.40	0.217	5.51	3.500	88.90	142.20	#	#	#	#	#	#	#	#	#
		7.80	0.276	7.01				#	#	#	#	#	#	#	#	#
		8.60	0.308	7.82				#	#	#	#	#	#	#	#	#
		9.35	0.340	8.64				#	#	#	#	#	#	#	#	#
		10.50	0.392	9.96				#	#	#	#	#	#	#	#	#
		11.50	0.440	11.18				#	#	#	#	#	#	#	#	#
3 1/2	88.90	9.20	0.254	6.45	4.250	107.95	166.20	#	#	#	#	#	#	#	#	#
		10.20	0.289	7.34				#	#	#	#	#	#	#	#	#
		12.70	0.375	9.52				#	#	#	#	#	#	#	#	#
		14.30	0.430	10.92				#	#	#	#	#	#	#	#	#
		15.50	0.476	12.09				#	#	#	#	#	#	#	#	#
		17.00	0.530	13.46				#	#	#	#	#	#	#	#	#
4	101.60	9.50	0.226	5.74	4.750	120.65	170.20	#	#	#	#	#	#	#	#	#
		13.20	0.330	8.38				#	#	#	#	#	#	#	#	#
		16.10	0.415	10.54				#	#	#	#	#	#	#	#	#
		18.90	0.500	12.70				#	#	#	#	#	#	#	#	#
		22.20	0.610	15.49				#	#	#	#	#	#	#	#	#
4 1/2	114.30	12.60	0.271	6.88	5.200	132.08	174.20	#	#	#	#	#	#	#	#	#
		13.50	0.290	7.37				#	#	#	#	#	#	#	#	#
		15.20	0.337	8.56				#	#	#	#	#	#	#	#	#
		17.00	0.380	9.65				#	#	#	#	#	#	#	#	#
		18.90	0.430	10.92				#	#	#	#	#	#	#	#	#
		21.50	0.500	12.70				#	#	#	#	#	#	#	#	#
		23.70	0.560	14.22				#	#	#	#	#	#	#	#	#

改进的偏梯形螺纹扣型。
Improved buttress thread.

宝钢特殊螺纹接头套管表
Table of Baosteel premium connection casing

管体 Tube body					接箍 Coupling			钢级 Steel grade								
尺寸规格 Sizes		公称重量 Nominal weight	壁厚 Wall thickness		外径 Outside diameter		长度 Length									
in	mm	lb/ft	in.	mm	in.	mm	mm	55	65	80	90	95	110	125	140	150
5	127.00	15.00	0.296	7.52	5.563	141.30	250.00	⊙	⊙	⊙	⊙	⊙	⊙	O	O	O
		18.00	0.362	9.19				O	⊙	⊙	⊙	⊙	⊙	⊙	O	O
		21.40	0.437	11.10				O	⊙	⊙	⊙	⊙	⊙	⊙	O	O
		23.20	0.478	12.14				O	O	⊙	⊙	⊙	⊙	⊙	O	O
		24.10	0.500	12.70				O	O	⊙	⊙	⊙	⊙	⊙	O	O
5 1/2	139.70	15.50	0.275	6.98	6.050	153.67	255.00	⊙	⊙	O	O	O	O	O	O	O
		17.00	0.304	7.72				⊙	⊙	⊙	⊙	⊙	⊙	O	O	O
		20.00	0.361	9.17				O	⊙	⊙	⊙	⊙	⊙	O	O	O
		23.00	0.415	10.54				O	⊙	⊙	⊙	⊙	⊙	⊙	O	O
6 5/8	168.28	24.00	0.352	8.94	7.390	187.71	265.00	⊙	⊙	⊙	⊙	⊙	⊙	O	O	O
		28.00	0.417	10.59				O	⊙	⊙	⊙	⊙	⊙	O	O	O
		32.00	0.475	12.06				O	O	⊙	⊙	⊙	⊙	⊙	O	O
7	177.80	23.00	0.317	8.05	7.656	194.46	275.00	⊙	⊙	⊙	⊙	⊙	O	O	O	O
		26.00	0.362	9.19				⊙	⊙	⊙	⊙	⊙	⊙	O	O	O
		29.00	0.408	10.36				O	⊙	⊙	⊙	⊙	⊙	O	O	O
		32.00	0.453	11.51				O	⊙	⊙	⊙	⊙	⊙	O	O	O
		35.00	0.498	12.65				O	O	⊙	⊙	⊙	⊙	⊙	O	O
		38.00	0.540	13.72				O	O	⊙	⊙	⊙	⊙	⊙	O	O

o 非API规格产品，可根据用户要求开发生产。
Any products beyond API specification can be made to order.

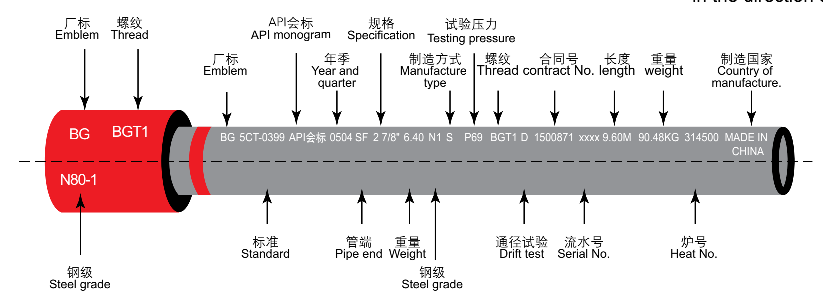
产品标记
Product marking

喷印内容:BG+5CT-0399+API 会标 + 制造日期 +SF+ 规格 + 重量 + 钢级 + 制造方法 + 试验压力 +BGC(BGT、BGT1)+D+ 合同号 + 管子流水号 + 长度 + 重量 + 炉号 +MADE IN CHINA。

对于小于 1830mm 的短节，上述漆印内容可打印并粘贴在距管端 305mm 范围内的管体外表面上，标记内容应沿管体轴向排布。

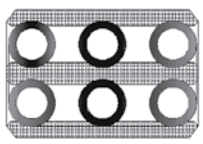
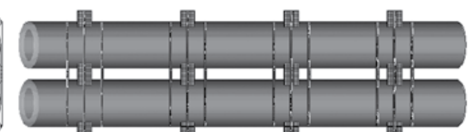
Stencil marking content: BG+5CT-0399 + API monogram + date of manufacture + SF + dimemsion + weight +steel grade + manufcuture process + testing pressure + BGC (BGT, BGT1) + D + contract No. +serial No. + length + weight + heat No. + MADE IN CHINA.

For the pupjoint less than 1830mm, the above-mentioned marking content can be printed and pasted on the outer surface of tube body within 305mm from tube end, and the marking content shall be arranged in the direction of tube body axis.



产品包装要求
Product packing specifications



- * 木架包装，油管每包重量≤ 2000kg，套管每包重量≤ 2500kg。
- * 短节木箱包装，油管每箱≤ 10 根，套管每箱≤ 6 根。
- * 每根管子和短节的螺纹端，均应涂均匀螺纹脂（或者合同要求的其他防护脂），并戴上保护环（包括内、外）。

- * Wooden stand packing: each package of tubing weighs ≤ 2000kg, while each package of casing ≤ 2500kg.
- * Wooden crate packing for pup joints: each crate of tubing weighs ≤ 10 pieces, while each crate of casing ≤ 6 pieces.
- * Apply an even thread compound (or other protective compound to order) to the threaded end of each tube and nipple, and put on protectors rings (incl. pin and box).

用户使用指南
User's guide

下管准备作业：

1、管架上摆放的钢管不得超过五层，在摆放的每一层钢管之间应放置木条。

2、在移动或使用钢管时，请随时装上护丝，钢管应轻拿轻放。

3、确认下管用的各种工具装置是否备齐并处于良好状态，包括：吊卡、卡瓦、吊环、大钳等工具。应检查卡盘和吊卡上的卡瓦，并注意使它们一起下放。应检查吊卡，注意吊卡活门门闩是否完好。两个吊环长度应相等。天车、游车、井口是否对准。

4、确认各种井下附件、短管、引扣器、悬挂器是否备齐，并处于可使用状态。

5、油管第一次下井之前，应该使用API通径规进行通径检验，以保证抽油泵、抽油活塞和分隔器通过。每根套管应进行全长通径检验，所用通径规应符合最新出版的API SPEC 5CT要求，通径不合格的油、套管不得使用。

6、对长油、套管柱，推荐使用上、下卡瓦式吊卡。卡盘和卡瓦应保持洁净，没有损伤，并配合适当。对重套管柱，应使用超长卡瓦。卡盘必须保持水平。

7、为了避免不必要的管壁刮削，在油管管体上应使用不挤坏油管的油管钳，并使其配合适当。油、套管钳板牙装配合适，与油、套管曲率一致，不推荐使用手管钳和扭矩过大，上扣速度过快的液压钳。油套管钳必须带有扭矩曲线显示和记录仪。

8、下管前，从管端和接箍端卸下护丝，彻底清洗内、外螺纹表面，直到全部螺纹和密封面裸露为止，最好在溶剂洗净后，再用压缩气吹干。

9、仔细检查每根钢管螺纹和密封面，若发现螺纹和密封面损伤，哪怕是一点儿损伤，也应挑出，并可采取有效措施进行修补。

10、下油套管前，应测量每根管子的长度，测量采用毫米精度的钢卷尺，从接箍（或内螺纹接头）最外端面测量到外螺纹指定位置，该位置是机紧时接箍（或内螺纹接头）终止位置。这样，测量的油套管总长度代表了油套管柱的自然长度（无载荷伸长）。

下管准备作业：

11、确认是否备有充足的螺纹脂。全部内、外螺纹表面应充分涂上符合API RP 5A3标准的螺纹密封脂。推荐使用Bestolife2000型螺纹脂。

12、用于提升的连接管和短节，应认真检查其螺纹和密封面质量，且保证与油套管螺纹和密封面的互换性。

13、对于高压油气井或凝析油井，为保证接头密封性能且便于操作，可要求工厂将接箍和油管分装运输，或要求工厂将接箍上紧到超过手紧位置一圈的程度。在油管内、外螺纹上涂抹螺纹脂，按规定扭矩上紧接箍。

14、油套管提上井架时应小心操作，不要将其弄弯，不要碰伤接箍或护丝，要确保大钩与井口处于同一垂直线上。

15、应检查每个接箍是否上紧。如果紧密距异常大，则应检查接箍是否装紧。在管子提升到井架上以前，所有的接箍应上紧。

Preparation before running:

1、The maximum amount of tubes on the rack shall not exceed 5 layers,and wooden strips should be laid between layers.

2、Please put on thread protector before moving or using tubes, and then handle them with care.

3、Make sure such tools for running as elevator, slips, links, tongs etc. are all ready and in good condition. Check the spider and the slips on the elevator, and lower them down together. Check the elevator to ensure the latch of the elevator valve in good condition. Keep the two links equally long. Align the crown block, traveling block and the well mouth.

4、Make sure various down-hole accessories, pup joints, stabbing pilot and hanger are ready for operation.

5、Before the initial running in the hole, drift tubing with an API drift mandrel so as to ensure passage of pumps, swabs, and dividers. Each casing must pass the full length drift test with a mandrel as specified by the latest version of API SPEC 5CT. Any and all casing and tubing that fail in the drifting must be rejected.

6、Slip elevators are recommended for long casing strings. Spider and elevator must be clean and damage-free and properly match one with another. Extra-long slips must be used for heavy casing strings. The spider must be level.

7、Use the proper tubing tongs that don't damage tubing body and get them well matched, so as to avoid scratches. Properly fit the tong dies, according to the string curvature. It is not advisable to use the pipe wrenches or the hydraulic wrenches that lead to too big torque and too quick makeup. Casing tongs must be equipped with torque curve display and record devices.

8、Just before running, remove thread protectors from both field end and coupling end, clean the threads thoroughly with solvent until all the threads and sealing faces are exposed, and then dry them with compressed air.

9、Carefully inspect every tube's threads and sealing face. Pick up the tubes with threads or sealing face damaged (even slightly damaged), and then do an effective repair, if possible.

10、Measure each casing's length before running. With a steel tape in mm accuracy, cover from the outermost face of coupling (or female thread joint) to the designated position at the male thread end, where the coupling or the box stops when the joint is made up. The so-measured total length of casing stands for the natural length of casing string (or without load extension).

11、Check whether there is sufficient thread compound in stock. Apply the thread sealing compound as specified by API RP 5A3 to all the female and male threads. It is advisable to use the thread compound Bestolife 2000.

12、Carefully check the quality of the threads and sealing face of the connectors and pup joints for lifting, and ensure their compatibilities with those of tubing and casing.

13、When used in high pressure oil-gas well and oil-condensate well, tubes may be ordered with the couplings shipped separately, or with couplings handled tight, approximately one turn more than hand tight, in order to ensure the connection sealing and easy operation. Apply thread compound to both interior and exterior threads, and make up the coupling as per specified torque.

14、When tube is pulled into the derrick, take care to prevent the tube from being bent and coupling or protector from being bumped. Ensure that the tongs stays in line with the hole.

15、Check whether each coupling is well made up. If the standoff is abnormally great, check the coupling for tightness. Tighten any loose couplings before pulling the tube into the derrick.

下管作业：

1、应将管子用吊索从管架吊至钻机的坡板，吊管时应把母扣部位吊起，使用吊卡或提升缆把管子吊至井架上。

2、在准备对扣之前，油套管的护丝不得卸下。如有必要，对扣前，可对螺纹和密封面表面涂抹螺纹脂。用于涂抹螺纹脂的刷子或用具不得有异物，同时螺纹脂不得稀释。

3、把最初的管子插入转盘开始下管，将母扣护丝卸下，把下一根接头吊移到井架上，并将公扣护丝摘掉，推荐进行清洗检查，在螺纹和密封面部位涂上螺纹脂。吊起的管子公扣端应与转盘无接触。

4、对扣时，必须使用引扣器，并应小心下放管子，以免损伤密封面及螺纹，应垂直对扣，并有人站在扶正台上帮助进行。对扣后，若管柱往一侧倾斜，应立刻提起，重新卸扣、清洗，并用三角锉刀修理损伤的螺纹面，仔细检查密封面，然后仔细清除任何挫屑，并在螺纹表面重新涂上螺纹脂。

5、下双根或三根油管时，应小心操作，以避免油管过重而引起弯曲和对中误差，为了防止油管弯曲，可以在井架上安置中间支架。

6、螺纹对好后，开始用手或动力大钳缓慢上扣，在井场上紧接头时，为防止粘扣，任何时候上扣速度都不得超过25r/min，最后拧紧时要放低速度，最好是10r/min以下，而且按规定扭矩上扣。要注意，固定大钳应置于加厚部位或接箍之下。紧扣时不使用管板手。

7、现场上扣应按工厂给定的上扣位置和扭矩进行操作。

8、在现场反复上紧的情况下，油管接头的使用寿命与上紧扭矩成反比。因此，对防漏要求不很严的油井，可采用最小现场上紧扭矩值，以延长接头寿命。

9、在上紧时，若管子摆动，可降低上紧速度，以免损伤螺纹和密封面。如果降低上紧速度后，管子仍摆动，需卸下检查。

10、在现场上紧时，可能会发现由工厂机紧的接箍端仍转动上紧，在并不表明工厂机紧的接箍太松，而只说明接箍的现场上紧端已达到工厂上紧端的程度。

11、应很慎重地搞清楚井底工况，油管下放时不能太猛。

12、套管柱应小心提升和下放，放置卡瓦时应小心操作，避免突变载荷和管柱下到井底。

13、设计套管柱时，应有明确的说明，包括各种钢级的套管在管柱中的正确配置、套管的重量和接头类型。在下放管柱时，应按设计程序正确而仔细地操作。

14、为便于下管和保证有足够的流体静压控制油层压力，在下套管过程中，应定期灌注泥浆。大多数情况下，每6-10根管子灌注一次泥浆。

15、卡盘的卡瓦和吊卡应经常清洗，卡瓦应没有损伤。





Running Operation:

1、Lift the tube with a sling rope from the rack to the slope board of the drill, box upward, and then lift the tube with elevator or hanger rope to the derrick.

2、Do not remove thread protector from field end of the tube until getting ready to stab. If necessary, apply thread compound to the threads and the sealing face before stabbing. Keep the brush and other tools for compound application free of impurities and don't dilute the compound.

3、Start running with the first tube inserted into the turntable. Then, remove the box protector, lift the next connector to the derrick and remove the pin protector. It is advisable to do a cleaning and check. Apply thread compound to threads and sealing face. Keep the pin of the lifted tube away from the turntable.

4、Use the stabbing pilot for stabbing. Lower the tube with care so as to prevent the threads and sealing face from being broken. Stab vertically, with the help of a supporting person on the stabbing board. If the casing stand inclines after that, lift it up immediately, and redo the breakout, cleaning and repair broken thread with a triangular file. Then carefully check the sealing face, clean away filings and apply thread compound to the threads.

5、When running doubles or triples, take care to prevent bowing and erroneous aligning due to the too heavy tubing resting on the coupling threads. Intermediate supports may be placed at the derrick to limit tubing's bowing.

6、After stabbing, screw up gently by hand or by power tubing tongs. In order to prevent galling when making up the joint at the field, always keep the making-up speed within 25r/min. When doing the final tightening, it is advisable to control the speed within 10r/min and with the specified torque. Pay attention: keep the fixing tongs under the upset part or the coupling. Don't use pipe wrench for tightening.

7、Carry out the makeup at field according to the made-up position and torque as specified by the manufacturer.

8、The tubing joint life varies inversely against the field makeup torque applied, if the make-up is repeated. So, it is advisable to use the minimum field makeup torque for a longer joint life, if the well doesn't require a very strict sealing.

9、Lower down the speed so as to prevent the thread and seal from being broken, if the tube swings during make-up. But, if the swing doesn't stop after speed reduction, remove the tube for inspection.

10、During field makeup, the coupling is likely to have some slight make-up on the mill end. This shows that the field make-up of coupling is as tight as the workshop make-up, instead of the loose workshop make-up.

11、Be prudent and look into the bottom. Gently set the tube down.

12、Carefully lift up and down the casing strings, and set slips with care to avoid abrupt loads and dropping of strings.

13、When designing casing strings, give specific instructions on how to properly locate various grades of steel, and on what weights of casing and what types of joints to be used. Properly run the string exactly according to the designed procedures.

14、In or to facilitate running and ensure adequate hydrostatic head to contain reservoir pressures, the casing should be periodically filled, while running it. In most cases, one filling is needed for every 6 to 10 lengths.

15、Spider slips and elevators should be cleaned frequently, and slips should be kept sharp.

提管准备作业：

1、建议使用卡瓦式吊卡。

2、使用动力大钳和固定大钳。

3、准备立管用的木板和清洁的公扣护丝。

Preparation for Tube Pulling:

1、Application of slip elevator is recommended.

2、Apply power tongs and fixing tongs.

3、Prepare wooden boards for standpipe and clean protectors of pin thread.

下管作业：

1、卸扣动力大钳应位于靠近接箍但不很近的地方,固定大钳要装在接箍上,以确保在接箍的上端脱扣。管子松扣后,用手或动力大钳低速卸扣。接头脱扣后,应立即将其公扣装上护丝。

2、在管子从接箍中提出以前,应格外小心地松开全部螺纹,不能让管子从接箍中突然跳出。

3、排放在井架上的油管应适当支撑,以避免过度的弯曲,最好连接成长度约为60 ft的立柱或相当于两根2级油管长度的立柱提升。在离开位置以前,油管应一直稳固地栓在油管立柱盒内。

4、为使油管和接头磨损均匀,每次起出油管后,都要将上部管段与下部管段相互调换。

5、强拉使油管柱松开后,拉出的全部接头应重新上紧。

6、管子在存放,应检查管体、螺纹和密封面。所有螺纹和密封面应清洗,加润滑油或涂上防腐材料,使其尽可能减少腐蚀,并应戴上干净护丝。对有缺陷的接头应作上标记,以便交付检修并重新测量。

7、再下管重新使用前,应确保螺纹和密封面干净、无损伤,并涂好螺纹脂。

注:13Cr油套管用户使用指南见宝钢13Cr油套管手册。

Tube Pulling:

1、Breakout tongs should be positioned close to the coupling but not too close, while fixing tongs should be placed on the coupling to breakout from the upper part coupling. After the coupling is loosened, disengage the coupling with hand or breakout tongs. Place the protector to the pin immediately after coupling is disengaged.

2、Great care should be exercised to disengage all of the threads before lifting the tube out of the coupling. Do not let the tube jump out of the coupling.

3、Tubing set back in the derrick should be properly supported to prevent undue bending. Tubing should be pulled in stands approximately 60 ft long or in doubles of range 2. Before leaving a location, always firmly tie a setback of tubing in place.

4、Distribute joint and tubing wear by moving a length from the top of the string to the bottom each time the tubing is pulled.

5、After a hard pull to loosen a string of tubing, all joints pulled out should be retightened.

6、Check the body, thread and sealing face of the tube before storage. All threads should be cleaned and lubricated or coated with such material as to minimize corrosion. Clean protectors should be placed on the tubing. Mark those couplings with defect for repairing and re-measuring.

7、Make sure threads are undamaged, clean, and well coated with compound before rerunning.

Note: Baosteel instruction manual of 13Cr casing can serve as the operation guide of 13Cr casing.

上扣推荐扭矩
Recommended torque for making up

◆◆◆ BGT1 上扣扭矩：
Makeup torque for BGT1:

尺寸 规格 Sizes	公称 重量 Nominal weight	壁厚 Wall thickness	55ksi			65ksi			80ksi			90-95ksi			110ksi		
			min	opt	max	min	opt	max	min	opt	max	min	opt	max	min	opt	max
in mm	lb/ft	in mm	ft.lb N.m			ft.lb N.m			ft.lb N.m			ft.lb N.m			ft.lb N.m		
2 3/8 60.33	4.60	0.190	1070	1170	1260	1150	1250	1350	1530	1660	1790	1550	1690	1820	1790	1950	2100
		4.83	1460	1580	1710	1560	1690	1830	2070	2250	2430	2110	2290	2470	2430	2640	2850
	5.80	0.254	1130	1230	1330	1280	1390	1500	1690	1840	1990	1780	1940	2090	2150	2340	2520
		6.45	1530	1670	1800	1730	1880	2030	2290	2490	2690	2420	2630	2840	2920	3170	3420
2 7/8 73.02	6.40	0.217	1420	1550	1670	1530	1660	1790	1900	2070	2240	2010	2190	2370	2440	2660	2870
		5.51	1930	2100	2270	2070	2250	2430	2580	2810	3030	2730	2970	3210	3310	3600	3890
	7.80	0.276	1630	1770	1910	1780	1940	2090	2200	2390	2580	2370	2580	2790	2770	3010	3250
		7.01	2210	2400	2590	2420	2630	2840	2980	3240	3500	3220	3500	3780	3750	4080	4400
	8.60	0.308	1780	1940	2090	1960	2130	2300	2450	2660	2870	2670	2900	3130	3030	3300	3560
		7.82	2420	2630	2840	2660	2890	3120	3320	3610	3890	3620	3930	4250	4110	4470	4830
3 1/2 88.90	9.20	0.254	2200	2390	2580	2340	2550	2750	2900	3150	3400	2980	3240	3500	3620	3940	4250
		6.45	2980	3240	3500	3180	3460	3730	3930	4270	4610	4040	4390	4740	4910	5340	5770
	10.20	0.289	2400	2610	2820	2560	2780	3000	3120	3390	3660	3210	3490	3770	4000	4350	4690
		7.34	3250	3540	3820	3470	3770	4070	4230	4600	4960	4350	4730	5110	5420	5890	6370
	12.70	0.375	2600	2830	3050	2910	3160	3410	3490	3790	4090	4030	4380	4730	5160	5610	6060
		9.53	3530	3840	4140	3940	4280	4630	4730	5140	5550	5460	5940	6410	6990	7600	8210
4 101.60	9.50	0.226	2410	2620	2830	2550	2770	2990	3040	3300	3560	3350	3640	3930	3840	4170	4500
		5.74	3270	3550	3830	3460	3760	4060	4120	4480	4840	4540	4940	5340	5210	5660	6110
4 1/2 114.30	12.60	0.271	2990	3250	3510	3200	3480	3760	3690	4010	4330	3860	4200	4540	4630	5040	5440
		6.88	4050	4400	4760	4340	4720	5100	5000	5440	5870	5240	5690	6150	6280	6830	7380
	13.50	0.290	3150	3420	3690	3400	3700	4000	4000	4350	4700	4360	4740	5120	5020	5460	5890
		7.37	4260	4640	5010	4610	5010	5410	5430	5900	6370	5910	6430	6940	6810	7400	7990
	15.20	0.337	3710	4030	4350	3940	4280	4620	4570	4970	5370	4880	5310	5730	5520	6000	6480
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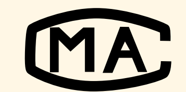
◆◆◆上扣扭矩要求：
Requirement for makeup torque:

尺寸 规格 Sizes	公称 重量 Nominal weight	壁厚 Wall thickness	55ksi			65ksi			80ksi			90-95ksi		
			min	opt	max	min	opt	max	min	opt	max	min	opt	max
in mm	lb/ft	in mm	ft.lb N.m			ft.lb N.m			ft.lb N.m			ft.lb N.m		
5 127.00	15.00	0.296	3030	3220	3420	3130	3330	3530	3380	3590	3810	3970	4230	4480
		7.52	4110	4370	4630	4240	4510	4780	4580	4870	5160	5390	5730	6070
	18.00	0.362	3610	3840	4070	3900	4150	4400	4340	4620	4890	4800	5100	5410
		9.19	4900	5210	5520	5290	5630	5970	5880	6260	6640	6505	6920	7340
	21.40	0.437	4090	4350	4610	4290	4560	4830	4850	5160	5470	5270	5610	5940
		11.10	5550	5900	6250	5809	6180	6550	6580	7000	7420	7140	7600	8060
	23.20	0.478	4300	4570	4850	4458	4740	5030	5040	5360	5680	5480	5830	6180
		12.14	5830	6200	6570	6040	6430	6820	6830	7270	7710	7430	7900	8370
	24.10	0.500	4370	4650	4930	4530	4820	5110	5150	5480	5809	5640	6000	6360
		12.70	5920	6300	6680	6140	6530	6920	6980	7430	7880	7640	8130	8620

尺寸 规格 Sizes	公称 重量 Nominal weight	壁厚 Wall thickness	55ksi			65ksi			80ksi			90-95ksi		
			min	opt	max	min	opt	max	min	opt	max	min	opt	max
in mm	lb/ft	in mm	ft.lb N.m			ft.lb N.m			ft.lb N.m			ft.lb N.m		
5 1/2 139.70	15.50	0.275	2980	3170	3360	3110	3300	3500	3380	3590	3810	3830	4080	4320
		6.98	4040	4300	4560	4210	4480	4750	4580	4870	5160	5200	5530	5860
	17.00	0.304	3310	3520	3730	3620	3850	4080	4070	4330	4590	4670	4960	5260
		7.72	4480	4770	5060	4910	5220	5530	5520	5870	6220	6330	6730	7130
	20.00	0.361	3860	4110	4350	4490	4770	5060	5250	5580	5920	6000	6390	6770
		9.17	5240	5570	5900	6080	6470	6860	7120	7570	8020	8140	8660	9180
	23.00	0.415	4300	4570	4850	4940	5250	5570	5710	6070	6430	6610	7030	7450
		10.54	5830	6200	6570	6690	7120	7550	7740	8230	8720	8960	9530	10100
7 177.80	23.00	0.317	4990	5310	5630	5320	5660	6000	6000	6390	6770	6610	7030	7450
		8.05	6770	7200	7630	7220	7680	8140	8140	8660	9180	8960	9530	10100
	26.00	0.362	5660	6020	6380	6260	6660	7060	7210	7670	8130	8320	8850	9380
		9.19	7670	8160	8650	8490	9030	9570	9780	10400	11020	11280	12000	12720
	29.00	0.408	6860	7300	7740	7770	8260	8760	9010	9590	10160	10400	11060	11730
		10.36	9310	9900	10490	10530	11200	11870	12220	13000	13780	14100	15000	15900
	32.00	0.453	7290	7750	8220	8330	8860	9390	9710	10330	10950	11090	11800	12510
		11.51	9880	10510	11140	11290	12010	12730	13170	14010	14850	15040	16000	16960
	35.00	0.498	7630	8110	8600	8830	9400	9960	10400	11060	11730	11790	12540	13290
		12.65	10340	11000	11660	11980	12740	13500	14100	15000	15900	15980	17000	18020
	38.00	0.540	7970	8480	8990	9360	9960	10550	11090	11800	12510	12490	13280	14080
		13.72	10810	11500	12190	12690	13500	14310	15040	16000	16960	16930	18010	19100

产品评估报告
Product evaluation report

宝钢 BGT1 油管评价试验报告
Evaluation and test report of Baosteel BGT1 tubing



中国石油天然气总公司石油管材质量监督检验测试中心

Tubular Goods Quality Supervising，Inspecting and Testing Center of China National Petroleum Corporation

检　验　报　告

(96) 量认 (国) 字 (J0113) 号　　**INSPECTING REPORT**

宝山钢铁（集团）公司中 φ 73.03×5.51 mm N80
BGT－1特殊螺纹油管全尺寸评价试验报告

(99) 管检字第112号

1999 年 4 月～ 6 月，中国石油天然气集团公司石油管材研究所对宝山钢铁 (集团) 公司送来的外径为 73.03mm, 壁厚为 5.51mm, 螺纹形式为 BGT1 的不加厚 N80 特殊螺纹油管进行了全尺寸评价试验，试验过程及结果如下。

From April to June of the year 1999, Tubular Goods Research Center of CNPC conducted a full length evaluation test for the non-upset N80 tubing submitted by Baoshan Iron & Steel Group Corporation, which is characterized by thread type: BGT1, out side diameter: 73.03mm and wall thickness: 5.51mm. The test procedure and result are as follows.

◆◆◆一、试验背景及方案：
Test Background and Test Program:

本次试验所用试样由宝山钢铁 (集团) 公司加工而成，连接螺纹采用 BGT-1 特殊扣。这种连接形式的结构由三部分组成：一是密封部分，采用柱面、锥面、球面组合的金属密封结构；二是扭矩台肩，采用 -15° 的外逆向扭矩台肩形式；三是连接螺纹，采用改进的偏梯形螺纹形式，每英寸 (25.4mm)8 牙，内螺纹表面镀铜，外螺纹未做任何表面处理。

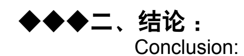
本次试验的方案根据 TGRC 评价程序制定 establish, 该 TGRC 评价程序主要是根据 API RP 5C5 和国内油、气田开发对油管服役性能的具体要求而拟定的。内容主要包括：

1、API RP 5C5 II 级油管试验程序；
2、增加满足定向井、大斜度井工况要求的 TGRC1 试验 (受弯曲、拉伸载荷时的气密封试验);
3、满足热采井工况的 TGRC2 试验 (高温、抗压、气密封试验)。

Samples applied in this test are manufactured by Baoshan Iron& Steel Group Corporation, and the connecting thread is BGT-1 premium, which comprises three parts, including the sealing face, adopting cylindrical, conical and spherical metal sealing structure; the torque shoulder, adopting a -15° out-reverse shoulder; the connecting thread, adopting the improved buttress thread, with eight threads per inch (25.4mm), copper coated on the internal thread and no surface treatment on the external thread.

The test program is drawn according to TGRC evaluation procedure which is mainly based on API RP 5C5 and the specified requirements for the active performance of oil tubes for domestic oil and gas field exploration. The program includes:

1.API RP 5C5 II Oil Tube Test Procedure;
2.Add a TGRC1 test for work conditions in directional well and inclined well (air-tight test under flexure or tension).
3.TGRC2 test for work conditions in thermal recovery well (high temperature, compression and air-tight tests).



◆◆◆二、结论：
Conclusion:

本次试验是对宝钢 BGT-1 特殊螺纹油管进行综合性能评价的试验(未对辅助密封单元刻槽)。总体上，这种外径为 73.03mm，壁厚为 5.51mm，不加厚 non-upsetN80 特殊螺纹油管(螺纹形式为 BGT-1)通过了 TGRC(包括 TGRC1：模拟定向井和大斜度井使用工况和 TGRC2：模拟热采井使用工况)评价试验，评价水平相当于 API RP 5C5 II 级油管评价试验。

试验：张 森 张富义 周 鹏 刘京涛
林 凯 高连新
拟搞：林 凯 高连新
审核：赵克枫 史交齐
批准：李平全

(石油管材质量监督检验中心 试验报告专用章)

This test is a comprehensive evaluation test for Baosteel BGT-1 oil tube with premium (without notching for accessory seal unit). In general, the oil tube with N80 premium, external diameter of 73.03mm and wall thickness of 5.51 mm, has passed the TGRC (including TGRC1L: simulating work conditions in directional well and inclined well, and TGRC2: simulating work conditions in thermal recovery well) evaluation test.

Tested by: Zhang Sen, Zhang Fuyi, Zhou Peng, Liu Jingtao, Lin Kai, Gao Lianxin
Drafted by: Lin Kai, Gao Xinliang
Audited by: Zhao Kefeng, Shi Jiaoqi
Audited by: Li Pingquan

宝钢 BGC 套管评价试验报告
Evaluation and test report of Baosteel BGC casing





2001量认(国)字(J0013)号 (2005)国认监认字(278)号 No. L1555

检 验 报 告

(2005)质检字 213 号

产品名称	套管	检验类别	委托检验
生产单位	宝山钢铁股份有限公司	送检单位	宝山钢铁股份有限公司
规格型号	Φ139.70×9.17mm P110 BGC	抽样地点	/
样品数量	18	样品编号	24－323：Z组、Y组、X组、W组、T组
到样日期	2004.8.16	送 样 人	王 琍
检验日期	2004.8.16～12.26	检测仪器设备	复合加载试验系统等
发送日期	2005.8.15	检测条件	室温/高温(177℃)
依据标准代号名称	API Spec 5CT《套管和油管规范》第7版 API RP 5C5《套管和油管接头评价程序推荐作法》第2版 API BUL 5C2《套管、油管和钻杆使用性能通报》第21版 API BUL 5C3《套管、油管、钻杆和管线管性能计算使用通报》第6版 SY/T 6128 《油套管螺纹连接性能评价方法》 生产厂企业标准		
检验结论	1 试样的螺纹参数检测结果符合试验要求的公差； 2 试样按产品推荐扭矩进行初始上、卸扣试验(3次上扣，2次卸扣)，均未发生粘扣及密封面损伤； 3 Z组试样按照 API RP 5C5 规定进行封堵管端最终内压循环与热循环试验，均未发生泄漏，试验参数为室温下试验压力为 90.1MPa(13070psi)，高温 177℃(350 ℉)下试验压力为 84.4MPa(12240psi)； 4 Z组试样接头内压屈服压力与 Y 组试样拉伸失效载荷均大于 API BUL 5C2 规定的同规格、同钢级套管接头最小屈服强度和连接强度； 5 X组和 W 组试样按照 API RP 5C5 有关规定分别进行低内压加拉伸至失[illegible]压加拉伸至失效试验，试样均发生断裂失效，试样失效时等效应力(VME)超过 100% 管[illegible] 6 T组试样进行纯外压挤毁试验，均发生挤毁失效，失效压力均高于 A[illegible] 5C2 规定的[illegible]同钢级套管的抗挤强度值。 综合结论：该类型接头套管试样均通过了所进行的试验项目，[illegible]接头达[illegible]要求。 (检验报告专用章) 2005年8月15日		
备注			
批 准	(签名) 审 核	(签名) 主 检	(签名)

(国家石油管材质量监督检验中心 检测报告专用章)

共 20 页 第 1 页



2004量认(国)字(J0013)号 (2005)国认监认字(278)号 No. L1555

检 验 报 告

(2005)质检字 214 号

产品名称	套管	检验类别	委托检验
生产单位	宝山钢铁股份有限公司	送检单位	宝山钢铁股份有限公司
规格型号	Φ139.70×9.17mm P110 BGC	抽样地点	/
注册商标	/	抽样基数	/
生产日期	/	样品数量	3
出厂编号	/	样品编号	24－323：S组
抽样日期	/	抽 样 人	/
到样日期	2004.6.30	送 样 人	王 琍
检验日期	2005.5.16～7.1	检测仪器设备	上、卸扣扭矩试验系统等
发送日期	2005.7.15	检测条件	室温/177℃
依据标准代号名称	API RP 5C5《套管和油管接头评价程序推荐作法》第2版 TGRC1《拉伸和弯曲条件下的内压试验》修订第1版		
检验结论	1 试样按照 API RP 5C5 规定进行组合，按委托方推荐的最大扭矩 9800N.m(7230ft－lbs)、最小扭矩 8640 N.m(6370ft－lbs)，进行上、卸扣试验(3次上扣，2次卸扣)，试验中均未发[illegible]损伤现象； 2 按照 TGRC1 的规定对试样进行拉伸和弯曲条件下的内压试验，最大狗[illegible]100ft)，内压为 56.9MPa(8250psi)、最大拉伸载荷为 2140.3 KN(481Kips)，所有[illegible]为 85% 管体屈服应力的试验条件下均未发生泄漏现象。 ([illegible]报告专用章) 2005年6月[illegible]日		
备注			
批 准	(签名) 审 核	(签名) 主 检	(签名)

(国家石油管材质量监督检验中心 检测报告专用章)

共 5 页 第 1 页

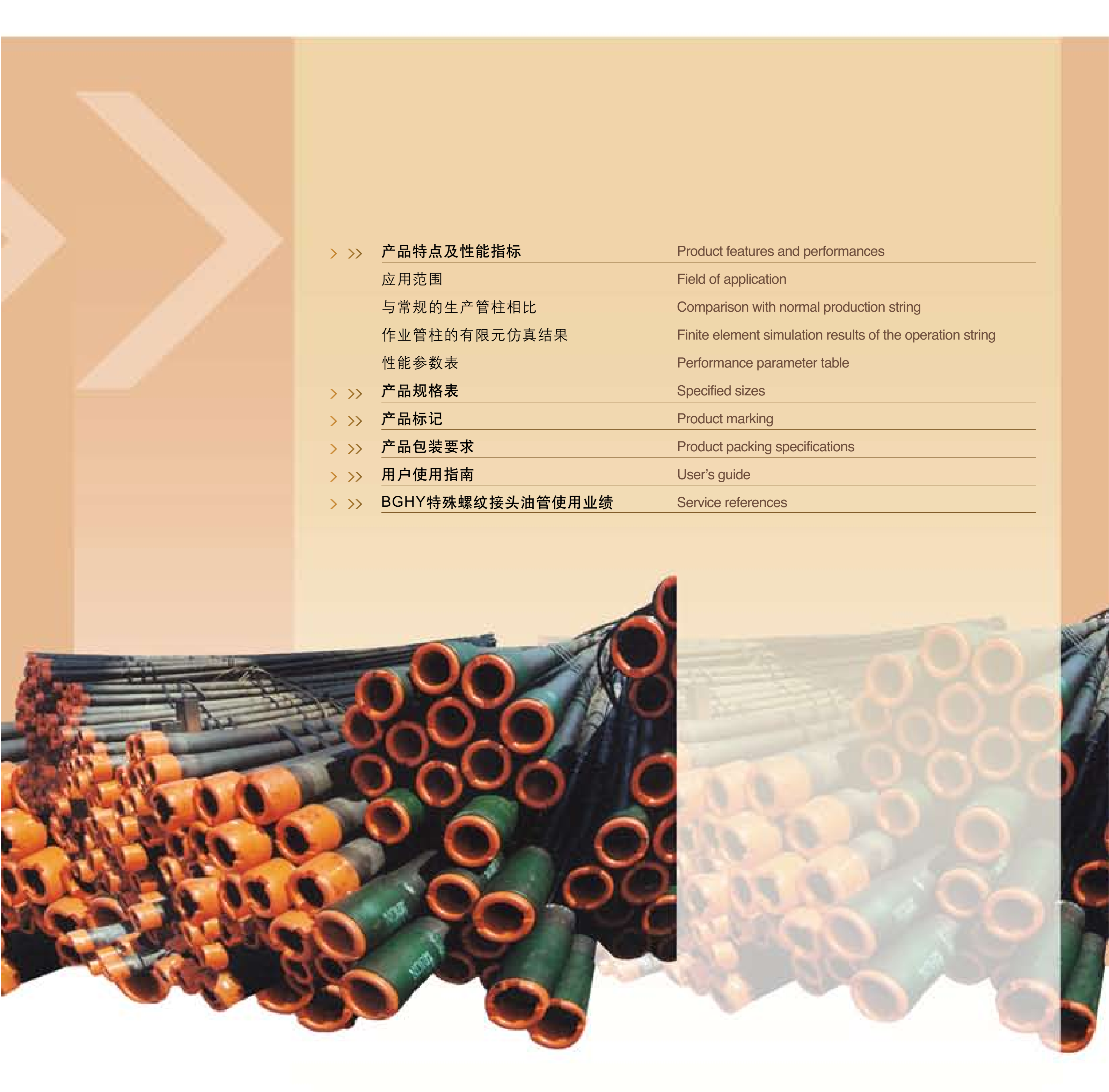
使用业绩
Service references

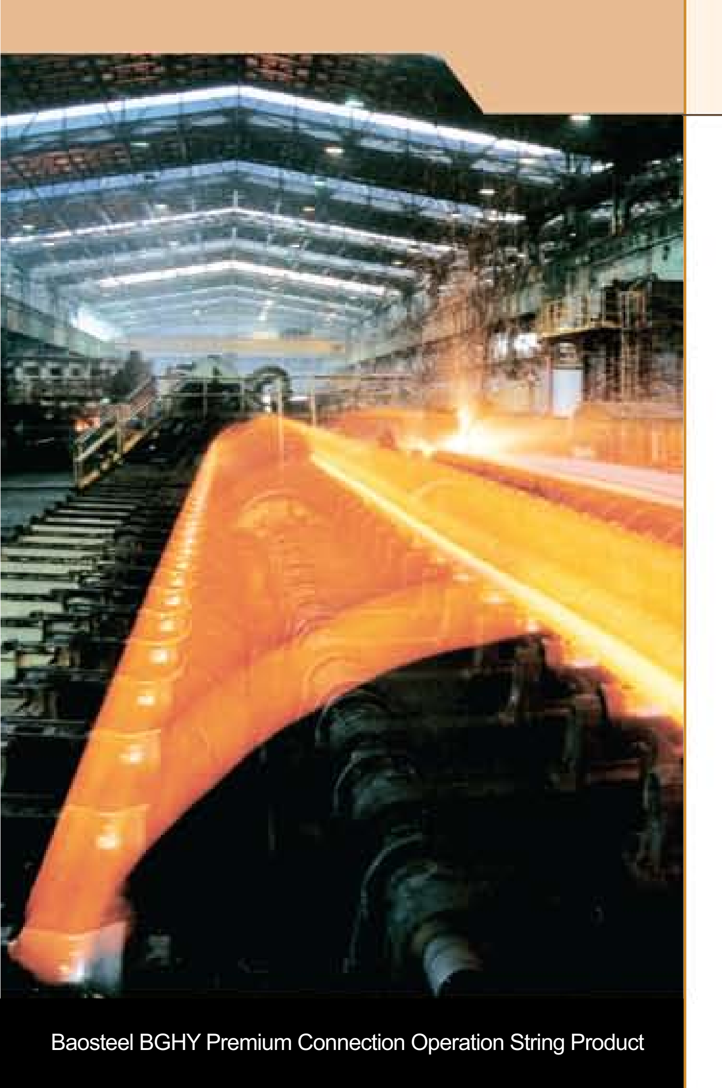
扣型 Type of coupling	产品规格和钢级 Product specification and steel grade	用户 Customer	使用情况 Service condition
BGC	Φ139.7mm×7.72mm P110 Φ139.7 mm×9.17mm P110	吉林油田 Jilin Oil Field	2004年10月、11月，2005年10月，500米～550米套钻井6口；1160米套钻井1口 October and November of 2004, October of 2005, 6 drill bits wells with depth ranging from 550m to 550m, 1 drill bits well with depth of 1160m
	Φ139.7mm×9.17mm BG80-3Cr	中石化西南分公司 Sinopec Southwest Branch	2005年11月下井，井深3001米，水平井，气井 Running down hole in October of 2007, horizontal well, gas well, depth of 3001m
	Φ139.7mm×9.17mm BG80-3Cr	四川油田 Sichuan Oil Field	2005年10月，井深3001米，气井 October of 2005, gas well, depth of 3001m
	Φ139.7mm×9.17mm BG110-3Cr	大庆油田 Daqing Oil Field	2006年3月，井深3890米，气井 March of 2006, gas well, depth of 3890m
	Φ139.7mm×9.17mm BG110-13Cr Φ139.7mm×9.17mm L80-13Cr	中石化华东分公司 Sinopec East China Branch	2007年10月，井深3260米，气井 October of 2007, gas well, depth of 3260m
	Φ177.8mm×12.65mm BG140	塔里木 Tarim	2007年实现供货600吨 600 tons of goods supplied in 2007
	Φ177.8mm×10.36mm BG80-3Cr	中海油 CNOOC	2007年实现供货170吨 170 tons of goods supplied in 2007
	Φ177.8mm×11.51mm BG90S	四川油田 Sichuan Oil Field	2008年实现供货320吨 320 tons of goods supplied in 2008

宝钢BGHY特殊扣作业管柱产品

Baosteel BGHY Premium Connection Operation String Product







Baosteel BGHY Premium Connection Operation String Product

应用范围
Field of application

该品种研究的目标是开发一种用于试油和井下作业用的特殊连接形式的特种油管，该油管在保证密封性能的基础上还应具备以下特点：高连接强度和高抗扭矩，抗粘扣能力强，对作业环境要求低。开发出兼有油管、钻杆功能新产品 —— 作业管柱。

试油作业管柱主要用在勘探钻井工程完钻后，用来对井下钻遇的若干个油组进行射孔作业、酸化作业、加砂压裂作业以及上述作业前的铣（井下尾管）喇叭口，钻机桥、钻水泥塞及处理井下事故等的一种具备部分钻杆功能的特殊油管。它的研发成功，将丰富宝钢石油管专用管的品种规格，大大提高试油采油的生产效率，降低作业者的劳动强度。

The aim of research on this product is to develop tubing with a premium connection and suitable for oil production test and down-hole operation. Such tubing should have the following properties on the basis of good sealing performance: high joint strength and high torque-resistance, good ability of anti galling, and low requirement for work conditions. And a new product, the operation string, which has a combined function of tubing and drill rod, is developed.

Operation string of oil production test is a kind of special tubing with part function of a drill rod. It is mainly used after the exploration drill finishes drilling, for perforating, acidizing and sand adding fracturing of some down-hole , as well as bell mouth milling before the above mentioned treatment. It is also used for drilling of machine bridge and cement plug, and for dealing with down-hole accidents. The success of its development will enrich Baosteel's product series of oil tube, greatly enhance the efficiency of oil production test and oil production, and reduce labor intensity of the operators.

产品特点及性能指标

Product features and performances

与常规的生产管柱相比
What does it differ in from normal production string

主要具有以下区别：

一、设计理念不同。作业管柱设计的原则是使用一套作业管柱来代替现在试油作业过程中使用一套小钻杆和至少一套油管才能完成的全部作业。而常规 API 生产管柱是无法做到的。它可以降低油田试油管作业直接的生产成本，提高油田的投入产出比。

二、服役的工况条件不同。作业管柱具备在旋转钻进状态下进行井下作业后满足静态生产管柱的服役条件。生产管柱不具备动态作业功能，只具备在静态条件下，满足原油生产多重性的需要。

三、现场作业减少空井时间，大大减少空井所造成的井喷失控事故。由于现在试油管作业采用的是生产管柱和钻杆交替使用的作业方式，在生产管柱更换时会有较长的空井时间，而作业管柱则只须很短的时间，增大了试油测试的安全性。

四、重复上卸扣次数不同。API 扣及其它扣型可重复上卸扣的次数很有限，一般为 4 次，超过 4 次容易粘扣。作业管柱则要求 12 次以上，不容易粘扣。

五、螺纹接头抗过扭强度比生产管柱要高的多。双台肩的螺纹设计大大提高了螺纹的抗动载过扭的可能性。

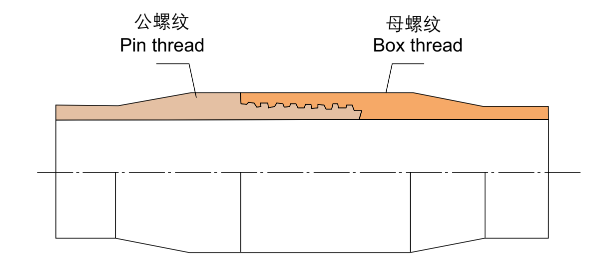
六、88.9 * 9.52mm 的 BG125 作业管柱具有 70MPa 的气密封性能。

七、作业管柱可以替代生产管柱的功能，而生产管柱不能代替作业管柱的功能。

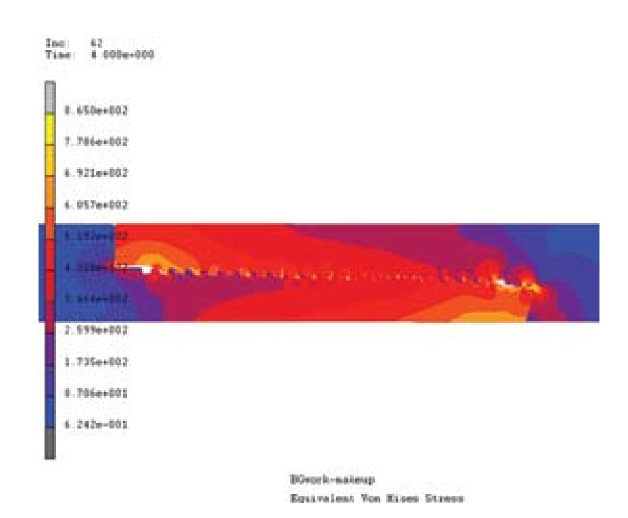
There are some differences as follows compared with the normal production string:

1. Different design concept: The design principle of the operation string is to use one set of operation string to do the work which demands one set of macaroni and at least one set of drill pipe during the oil production test, which the normal API production string can not accomplish. It can reduce direct cost of oil production test, and decrease the input-output ratio.
2. Different working conditions: The operation string can still work in static conditions like production string after down-hole rotary drilling, while the production string doesn't have dynamic work function but can only meet various needs for crude oil production under static circumstances.
3. Empty hole time is reduced, and thus greatly reduce the blowouts caused thereby. At present, production string and drill pipe are used alternately for oil production test, so there is quite long time of empty hole. But it needs only very short time for the operation string, so safety of oil production test is enhanced.
4. Different times of repeated makeup and breakout: Galling will occur after normally 4 times of repeated makeup and breakout to API and other types of coupling, while that figure comes to more than 12 for the operation string.
5. The torsion strength of threaded coupling is much higher than that of the production string. The thread design of double shoulder greatly increases the possibility of over torsion resistance.
6. The 88.9 * 9.52mm BG125 operation string acquires a seal property of 70MPa.
7. Operation string can take the place of production string, but not vice versa.

结构如下图
Its structure is shown in the following drawing:



作业管柱的有限元仿真结果
Finite element simulation results of operating string



性能参数表
Product Specification Table

扣型 Type of coupling	紧扣扭矩(牛.米) Makeup torque (N·m)	抗拉强度(千牛) Tensile strength (kN)	抗挤强度(兆帕) collapse strength (mPa)	最小内屈服压力(兆帕) Minimum yield strength (mPa)	气密封压力(兆帕) Air seal pressure (mPa)	抗扭强度(牛.米) Torsion strength (N·m)
HUYANG-M*	8000	2000	140	140	105	20000
HUYANG	8000	2000	165	161		20000

M－代表气密封
M－Air sealing

产品规格表
Specified sizes

扣型 Type of coupling	外径(mm) Outside diameter (mm)	钢级 Steel grade	壁厚(mm) Wall thickness (mm)	重量(Kg/m) Weight (Kg/m)	截面积(Mm²) Sectional area (Mm²)	公称内径(mm) Nominal internal diameter (mm)	接箍外径(mm) Diameter of coupling (mm)	吊卡台肩 Elevator shoulder
HUYANG-M*	3 1/2"	BG125	9.52	19.27	2375	66.7	108.0	18°
HUYANG								

M－代表气密封
M－Air sealing

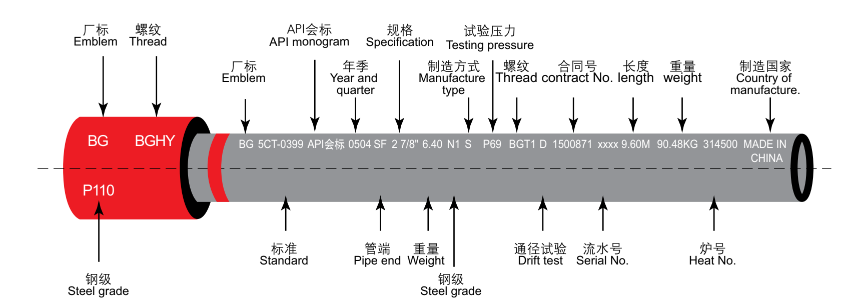
产品标记
Product marking

喷印内容 :BG+5CT-0399+API 会标 + 制造日期 +SF+ 规格 + 重量 + 钢级 +S+ 试验压力 +BGHY+D+ 合同号 + 管子流水号 + 长度 + 重量 + 炉号 +MADE IN CHINA。

对于小于 1830mm 的短节，上述漆印内容可打印并粘贴在距管端 305mm 范围内的管体外表面上，标记内容应沿管体轴向排布。

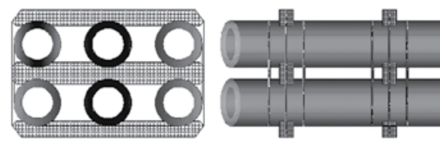
Content of stencil marking: BG+5CT-0399+API monogram+date of production+SF+specification+weight+steel grade+S+test pressure+BGHY+D+contract number.+serial number of the tube+length+weight+heat number+MADE IN CHINA.

For the pup joints less than 1830mm, the above-mentioned marking content can be printed and pasted on the outer surface of tube body within 305mm from tube end, and the marking content shall be arranged in the direction of tube body axis.



产品包装要求
Product packing specifications





* 木架包装，每包重量≤ 2000kg。
* 短节木箱包装，每箱≤ 10 根。
* 每根管子和短节的螺纹端，均应涂满螺纹脂 (或者合同要求的其他防护脂), 并戴上保护环 (包括内、外)。

* In wood racks, each rack weighing ≤ 2000kg
* Pup joint is are packed, with max 10 pipes in each case.
* Sufficient thread compound (or other protection compound as per the contract) should be applied to the coupling end of each tube and short section, and protectors should be placed on the thread (both internal and external included).

用户使用指南
User’s guide

HUYANG 作业管的特殊要求
Special Requirement for HUYANG Operation Tube

HUYANG 作业管是一种用于试油和井下作业的特殊连接形式的油管，该油管在具备 API 油管性能的基础上还具备以下特点：高连接强度和高抗扭矩、抗粘扣能力强，对作业环境要求低，兼有油管、钻杆功能。它可以连续进行联作 - 射孔作业、酸化压裂作业、加砂压裂作业、钻水泥塞作业、钻机桥等作业。根据用户的使用工况，可分为气密封型和常规型两种类型的作业管供用户选择。因此，在运输、装卸、使用作业管的过程中，对作业管必须防碰撞，防止螺纹损伤变形。因而在运输、作业方面有严格要求。

HUYANG operation tube is a kind of tubing with special connection used for oil production test and down-hole operation. In addition to API tubing performance, it has such features as high connection strength, good torsion resistance, strong anti-galling performance, good environment adaptability, and combined functions of oil tube and drill rod as well. It can continuously perform such works as perforating, acidizing and fracturing, sand adding fracturing, and drilling of cement plug and machine bridge. There are two kinds of operation tubes: air-tight and normal types, which are to be taken by users just to meet their requirement. During transportation, handling and operation, special attention is required to prevent them from collision and thread-damaging or deforming. So, strict requirements for transportation and operation must be met.

◆◆◆设备要求：
Equipment requirements:

1、螺纹脂符合 API RP 5A3。
2、涂螺纹脂到公扣端的毛刷。
3、上扣时使用专用对扣器。
4、带完整的液压背钳的动力钳。
5、液压钳具有重量补偿系统，以便将公扣对母扣的碰撞损失减到最低限度。
6、扭矩监测系统。

1、Thread compound conforms to API RP 5A3.
2、Hair brush for thread grease.
3、Use special stabbing pilot for makeup.
4、Power tongs with complete hydraulic back-up tong.
5、Hydraulic tongs shall have weight compensation system so as to minimize the collision loss of male thread to female thread.
6、Torque monitoring system.

◆◆◆技术要求
Technical requirement:

1、检验游车与井口的偏移度。游车上提一根作业管后，使作业管处在静止状态时，检验作业管公接头与井口的偏移量。偏移量不得大于 10 厘米。否则，操作现场要采取配套补救 措施，防止上、卸扣时损坏作业管丝扣。
2、上扣速度小于 25rpm. 在台肩接触之前大约 1 圈时，将大钳速度转到低速档，上扣速度小于 10rpm。

1、Check drift rate between traveling block and the hole. When the operation tube stays in static after being picked up by traveling block, please check the side play amount between box of the tube and the hole. Side play amount shall not exceed 10cm, otherwise, supporting measures are to be adopted in the field to avoid damaging the coupling during makeup and breakout.
2、AT one turn before the shoulders contact with the makeup speed of less than 25rpm, switch the tongs to low speed of less than 10rpm.

◆◆◆具体要求见下表：
Detailed Requirements Are as Follows:

	开始上扣 Start makup		结束上扣 Finish makeup	开始卸扣 Start breakout		结束上扣 Finish makeup
	第1-2圈 The first 1-2 turns	1-2圈后 After the first 1-2 turns		开始2圈 The first 2 turns	2圈后 After the first 2 turns	
碳钢 Carbon steel	低速档 最好手紧 Hand tighten for low speed	高速档 最大5~15rpm Max 5~15rpm for high speed	低速档 最大1~5rpm Max 1~5rpm for low speed	低速档 最大5rpm Max 5rpm for low speed	高速档 最大25rpm Max 25rpm for high speed	低速档或 最好手卸 Hand loosen for low speed

3、应使用可显示扭矩与时间或扭矩与圈数监测系统。
4、上扣结束时的台肩比为 :40%-90%。
5、上扣扭矩超过最大扭矩 (120% 最佳扭矩) 的所有接头均视为连接失败。
6、上扣扭矩低于最佳扭矩 80% 或推荐的最小扭矩的任何接头视为连接失败。

3、Monitor system that can display torque and time or torque and turns should be applied.
4、Shoulder ratio at the end of makeup should be 40%-90%.
5、All the connections that are made up with a torque greater than the max value (120% of optimal value) are taken as failure connection.
6、Any connections made up with a torque of less than 80% of the optimal value or the recommended minimum value are taken as a failure.

现场作业程序
Field Operation Procedure

作业前准备工作：

1、在井场使用清洗油逐根清洗公、母螺纹及护丝。(具体措施现场再定)。
2、对扣前在用抹布/毛巾，卸去护丝，把公、母螺纹擦洗干净，不得有砂粒存在。并检查螺纹金属密封面、扭矩制推面、扭矩面不得有损伤。
3、检查下作业管工具是否齐全，检查套管钳钳头、卡 盘卡瓦芯尺寸是否正确。
4、接好电源、气路、液路，检查卡盘、动力源、液压套管钳、扭矩记录仪等是否良好。

Preparation before Running:

1、Clean both the pin and box threads and protectors of each tube with solvent (detailed proctice can be determined in the field).
2、Before stabbing, remove thread protector and clean pin and box threads with a mop/towel so as to get rid of sands. Then check the metal sealing face, torque thrust face and torque face of threads, to ensure there is no damage.
3、Check whether the tools for running of the operation tube are ready, and whether the dimensions of the clipper jaw of pipe wrench and slip core are correct.
4、Connect the power, gas, liquid, and check the condition of spider, power source, hydraulic pipe wrench and torque recorder.





下套管作业：

* 液压油管钳的操作

1、将油管钳环绕于作业管上，调节油管钳到合适的高度，关闭活门。

2、先用高速档上扣，如果作业作业管错扣，应在扶正人员的配合下，先将丝扣倒一、二圈，待听到丝扣退出的响声后继续上扣，高档位操作至套管转不动时，将控制阀回复中间位置，换低速档然后再操纵控制阀，完成上扣。

3、在上扣的同时，应观察扭矩表，等读数达到指定值，将操纵阀手柄向反方向扳动，使钳头松开，使大齿轮锁紧销转至钳子活门对缝处，打开活门，将钳子退出套管。上扣扭矩6000-7000英尺磅。

4、作业管上扣时，注意套管的外观和丝扣，发现问题及时向有关方面报告。

5、上作业管的测井工具时，应盖好井口，防止手工工具及其它附件落入井内。

6、在下作业管过程中，如果发生套管粘扣或其它不合格工序，应及时纠正并按照《不合格工序/产品的控制程序》采取相应措施，填写《不合格检验单》。结束作业后，将《不合格检验单》交作业管设计方(或相关方)。

* 作业管的上扣操作

1、当作业管被单根吊卡提升到小平台后，待井口人员及司钻把作业管放入上一根作业管母扣上方时，扶正作业管，以配和作业管上扣，作业管未安全上扣前，严禁打开单根吊卡。

2、待作业管上扣完毕，打开吊卡气动开关，关闭吊卡。

3、当作业套管入井到合适位置时，打开卡瓦气动开关，关闭卡瓦，然后打开吊卡，进行下一根操作。

* 扭矩记录仪的操作

1、接通扭矩仪，使扭矩仪处于工作状态，将记录磁盘插入软驱，如是防爆扭矩仪，应紧闭密封门。

2、输入所下作业管的各项参数，并作好调试。

3、当作业管上扣时，注意作业管扭矩曲线的变化，如发现异常立即向甲方有关技术人员报告。

如果发现有该规程未涉及的情况出现，协商处理。





Running of casing:

* Operation of hydraulic tubing tongs

1、Twist the tongs around the operation tube, adjust the tongs to a suitable height, and close the valve.

2、Start the making up with high speed. If thread is crossing, reversely turn the thread by one or two turns with assistance of the supporting person, and continue with making up until there goes the noise of thread withdrawal. When the casing can't be turned with high speed, please set the control valve in intermediate position, and switch to low speed before handling the valve again to finish the makeup.

3、Watch the torque meter during making up, and reversely turn the control valve when the reading reaches the set value to loosen the binding clips. Turn the locking pin of large gear to the valve joint of the tong, and open the valve to withdraw the tong. The torque for making up is 6000-7000 ft-lb.

4、Watch the exterior and thread of the casing during making up, and report any abnormality timely to corresponding parties.

5、Cover the hole while placing the measuring tools to avoid tools or other pieces dropping to the hole.

6、During running of operation tube, any galling of casing or other faulty process shall be corrected and dealt with relative measures as per the Control Procedure of Faulty Process/Product, and the Faulty Inspection Bill shall be filled in. Submit the bill to the designer of the tube (or corresponding party).

* Makeup of the Operation Tube

1、After the operation tube is lifted to the small platform by a single elevator, the driller and assistants should place that tube above the box of the last one, and hold the tube straight to assist the makeup. The single elevator shall never be opened before the tube is made up.

2、Open the pneumatic switch to turn off the elevator after the makeup.

3、Open the pneumatic switch to turn off the slip when the tube is lowered to a suitable position down hole, then turn on the elevator to deal with the next tube.

* Operation of Torque Recorder

1、Switch on the torque recorder, and insert the recording disc to soft disc driver. In case of explosion-proof recorder, the sealing gate should be tightly closed.

2、Input the data of incoming tubes, and fulfill the commissioning.

3、Watch the variation of the torque curve during makeup of the operation tube. Report any abnormality to corresponding technician immediately on detection.

Unexpected conditions should be settled through consultation.

使用业绩
Service references

扣型 Type of coupling	产品规格和钢级 Product specification and steel grade	用户 Customer	使用情况 Service condition
BGHY	Φ88.9mm × 9.52mm BG125	塔里木 Tarim	2005年11月下井，井深5337米，评价井 Running in an evaluation well of 5337m deep in November, 2005
BGHY	Φ73.02mm×7.82mm BG125	塔里木 Tarim	2008年订货11.83吨 11.83 tons of sales ordered in 2008

SUPERMAX特殊螺纹接头油管产品

SUPERMAX Premium Connection Oil Tubing Product







SUPERMAX Premium Connection Oil Tubing Product

SUPERMAX 扣产品特点
Product characteristic of SUPERMAX connection

* SUPERMAX 扣是螺纹密封的油管接头。
* 采用不加厚管，节省加厚工序及加厚后的热处理工序，降低生产成本。可维修性更好，规避了不加厚油管不可切头重车的缺点，便于油田自行修复。
* 采用 2° 承载面和 45° 引导面的偏梯形螺纹，螺纹啮合长度上轴向承载面的面积超过管体截面积的 4 倍以上，使得螺纹连接与管体等强度。
* 通过合理设计螺纹公母扣的齿宽和齿高，减少甚至消除螺纹泄漏通道，从而提高螺纹接触压力，达到超过内压的要求，可形成满意的液体密封性甚至具备一定的气密封能力。抗泄漏性能设计指标为可承受 100% 管体强度的水压和 34MPa 的气压。
* 螺纹齿顶、齿底与螺纹母线平行，方便用中径规进行准确测量。
* 锥度为 1/16,8 牙 / 英寸
* 接箍磷化处理

* SUPERMAX coupling is a tube joint of thread seal.
* Non-upset tube is used, so the upsetting process and heat treatment are cancelled and the production cost reduced. It is maintenance-friendly. It overcomes such shortcoming as inaptitude for re-cutting and re-machining, and facilitates the repair in the oil field.
* The buttress thread with a 2°bearing plane and a 45°guide plane is used. So, the area of the axial bearing plane in the thread meshing length direction is over 4 times greater than the section of the tube, securing the thread connection’s strength as good as the tube body.
* The tooth width and depth are designed in a reasonable way to reduce or eliminate the leakage passage in the thread, so as to increase the thread’s contact pressure to exceed the internal pressure as required, thus providing the desired liquid sealing or kind of air sealing. Its anti-leakage performance is designed to stand the 100% hydrostatic pressure by tube body strength and 34MPa of air pressure.
* The thread’s crest and flute are parallel to thread bus. The accurate thread measurement can be easily done with pitch diameter gauge.
* Taper: 1/16, 8 TPI
* Phosphating treatment of coupling

产品特点及性能指标

Product features and performances

应用范围

Field of application

SUPERMAX 油管自 1999 年起已在美国加州推广应用，使用的单位有 Nuevo 能源公司、Aera 能源公司、Breitburn 能源公司等，其实际应用范围包括：

1、代替 API 加厚油管
2、低压气井中代替特殊扣油管
（气压小于 34MPa 的场合）
3、高压压裂 fracture 油管
4、热采油管（注蒸汽的采油作业）
5、特殊间隙油管，接箍外径比加厚油管小但连接强度比不加厚油管高的场合。
6、加厚长度不够长的 API 加厚油管的回收利用



Since 1999, SUPERMAX tube has been extensively used in California, USA. Its main customers are Nuevo Energy, Aera Energy, Breitburn Energy etc. Its field of application includes:

1. Substitution of upset tube
2. Substitution of the tube with premium connection in the low pressure gas well (< 34Mpa)
3. High pressure fracture tube
4. Thermal recovery tube (oil production by steam injection)
5. Oil tube with special clearance, in case the external diameter of coupling is smaller than the upset tube, but its connection strength is higher than the non-upset tube.
6. Reparing of API upset tube whose upset area is not long enough.

SUPERMAX 扣产品性能

Performance of SUPERMAX coupling

◆◆◆密封性能：

Sealing performance:

螺纹啮合形式与螺纹的过盈量一样，都是抗泄漏设计的关键因素。SUPERMAX 扣螺纹啮合后，引导面和承载面均相互接触，承载面和引导面的接触应力随着螺纹旋合过盈量的增加而增加，如图 1 (a) 所示；但 API 偏梯形螺纹扣型螺纹啮合后齿侧有间隙，如图 1(b) 所示。

Both the engaging type and the interference shrink of the thread are vital to the anti-leakage design. With the thread of SUPERMAX coupling meshed, the guide plane and the bearing plane contact each other. Their contact stress increases with the growing thread interference shrink, (see table1-a). But, there exists clearance after getting API buttress threads meshed, (see table1-b).

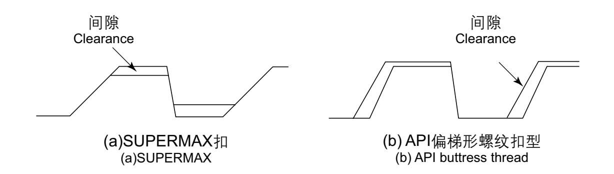


图1 螺纹啮合状态的区别
Table1 Difference in thread engagement

图 2 是 SUPERMAX 扣承载面和引导面接触应力分布图，其承载面和引导面具有相同水平的接触应力。爆破失效试验证实接头直到管体爆裂也没有泄漏。

Fig 2 gives the distribution of SUPERMAX connection's contact stresses on the bearing plane and the guide plane, whose contact stresses are at the same level. As proved by the blowout failure test, there is no leakage until the tube blowout.

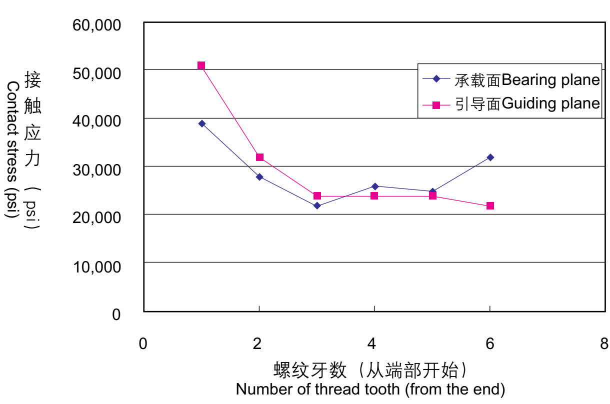


图2 SUPERMAX 扣螺纹拧紧后的接触应力
Contact stress with thread tightened of SUPERMAX coupling in table 2

◆◆◆接头连接强度：
Joint strength:

SUPERMAX 扣的螺纹为 2° 承载面的偏梯形螺纹，与梯形螺纹一样，对薄壁管的连接能力为 100% 的管体强度。

Thread of SUPERMAX coupling is buttress thread of 2° bearing plane, and connection strength with thin-wall tube is 100% of the yield of pipe body strength, same as that of API BTC.

◆◆◆环向应力：
Hoop stress:

与带抗扭矩台阶的特殊扣相比 ,API 标准螺纹接头总是有一个缺点，即环向应力更高，特别是在酸性油气井中，更容易导致螺纹开裂。如图 3 所示，SUPERMAX 扣接箍上的环向应力不超过 J55 的屈服强度。

Compared with the premium connection of torque shoulder, the API thread coupling has a drawback: higher hoop stress, which easily results in thread crack, especially in acid oil gas well. As is shown in diagram 3, the hoop stress in the SUPERMAX coupling doesn't exceed the yield strength of J55.

◆◆◆压缩性能：
Compression performance:

根据测试 2-3/8”, 2-7/8” 和 4-1/2” 的结果 ,100% 管体强度的压缩载荷下仍然保持密封能力。

According to test result of 2-3/8”, 2-7/8” and 4-1/2”, seal performance still works under the compression load of 100% tube strength.

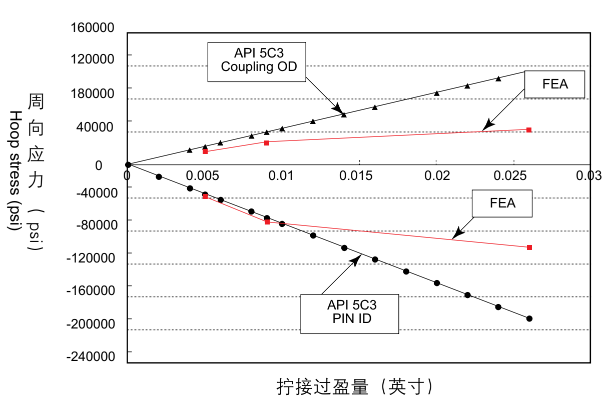


图3 SUPERMAX 的环向应力
Hoop stress of SUPERMAX in table 3

◆◆◆ **SUPERMAX 性能参数表：**
SUPERMAX performance data sheet:

尺寸规格 Sizes	公称重量 Nominal weight (lbs/ft)	壁厚 Wall thickness (in)	挤压强度 Collapse pressure (ps)			内屈服压力 Internal yield strength (psi)			连接强度(psi) Joint strength （1000lbs)		
in	lb/ft	in.	J55	L80 N80	P110	J55	L80 N80	P110	J55	L80 N80	P110
2 3/8	4.60	0.190	8100	11780	16130	7700	11200	15400	72	104	143
	5.10	0.218	9170	13340	18340	9170	13340	17670	81	118	162
	5.80	0.254	10510	15280	21010	10290	14970	20590	93	135	186
2 7/8	6.40	0.217	7680	11170	14550	7260	10570	14530	100	145	199
	7.70	0.276	9550	13890	19090	9240	13440	18480	124	180	248
	8.60	0.308	10520	15300	21040	10310	15000	20620	137	199	273
3 1/2	7.70	0.216	5970	7860	9730	5940	8640	11880	122	178	245
	9.20	0.254	7400	10540	13530	6980	10160	13970	142	207	285
	10.20	0.289	8330	12120	16670	7950	11560	15900	160	233	321
4	9.50	0.226	5110	6580	7900	5440	7910	10880	147	214	295
	10.90	0.262	6590	8800	11060	6300	9170	12610	169	246	338
	13.00	0.330	8330	12110	16650	7940	11550	15880	209	304	419
	14.80	0.380	9450	13750	18910	9140	13300	18290	238	346	475
4 1/2	10.50	0.224	4000	4930	5550	4790	6970	9580	165	240	331
	11.60	0.250	4950	6350	7570	5350	7780	10700	183	267	367
	12.60	0.271	5730	7500	9210	5800	8430	11590	198	288	396
	13.50	0.290	6420	8540	10690	6200	9020	12410	211	307	422
	15.10	0.337	7620	11080	14340	7210	10480	14420	242	353	485

产品规格表
Specified sizes

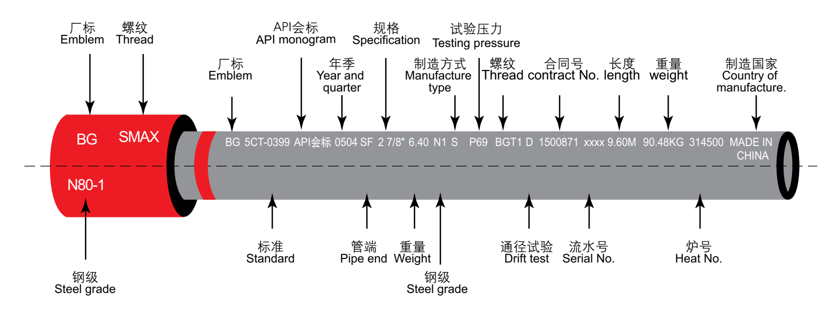
◆◆◆ **SUPERMAX 规格参数：**
Specified parameters of SuperMAX:

管体 Pipe body					公螺纹 Pin thread	接箍 Coupling				API 外加厚接箍外径 Coupling OD of API EUE
外径 Outside diameter	公称重量 Nominal weight	壁厚 Wall thickness	内径 Internal diameter	通径直径 Drift Size	螺纹长度 Thread length	外径 External diameter	特殊间隙外径 Special clearance	联接效率 Connection Efficiency	长度 Length	
in	lb/ft	In	In	In	In	In	In	%	In	In
2 3/8	4.60	0.190	1.995	1.901	2.591	2.875	2.700	114	6.167	3.063
	5.10	0.218	1.939	1.845			2.700	101		
	5.80	0.254	1.867	1.773			2.750	101		
2 7/8	6.40	0.217	2.441	2.347	2.591	3.500	3.250	112	6.167	3.668
	7.70	0.276	2.323	2.229			3.300	101		
	8.60	0.308	2.259	2.165			3.350	102		
3 1/2	7.70	0.216	3.068	2.943	2.575	4.250	3.850	103	6.167	4.500
	9.20	0.254	2.992	2.867			3.900	100		
	10.20	0.289	2.922	2.797			4.000	110		
4	9.50	0.226	3.548	3.423	2.823	4.750	4.400	109	6.789	5.000
	10.90	0.262	3.476	3.351			4.450	106		
	13.00	0.330	3.340	3.215			4.550	104		
	14.80	0.380	3.140	3.115			4.650	108		
4 1/2	10.50	0.224	4.052	3.927	3.075	5.200	4.900	109	7.293	5.563
	11.60	0.250	4.000	3.875			4.950	110		
	12.75	0.271	3.958	3.833			4.950	102		
	13.50	0.290	3.920	3.795			5.000	106		
	15.10	0.337	3.826	3.701			5.100	110		

产品标记
Product marking

喷印内容 :BG+5CT-0399+API 会标 + 制造日期 +SF+ 规格 + 重量 + 钢级 +S+ 试验压力 +SMAX(SMAX-TS)+D+ 合同号 + 管子流水号 + 长度 + 重量 + 炉号 +MADE IN CHINA。

Content of marking: BG+5CT-0399+API monogram+date of production+SF+specification+weight+steel grade+S+test pressure+BGHY+D+contract number.+serial number of the tube+length+weight+heat number+MADE IN CHINA.



产品包装要求
Product packing specifications



* 捆装，每捆重量≤ 2000kg。
* 短节木箱包装，每箱≤ 10 根。
* 每根管子和短节的螺纹端，均应涂满螺纹脂 (或者合同要求的其他防护脂), 并戴上保护环 (包括内、外)。

* Packing in bundles, weighing ≤ 2000kg each
* Packing in short section wooden case, containing ≤ 10 pieces each
* Sufficient thread compound (or other protection compound as per the contract) should be applied to thread end of each tube and short section.

用户使用指南
User’s guide

下井作业：

＊ 注意事项

1、管架上摆放的钢管不得超过五层。
2、在摆放的每一层钢管之间应放置木条。
3、在移动或使用钢管时，请随时装上护丝。
4、钢管应轻拿轻放。

＊ 准备

1、确认下管用的各种工具装置是否备齐并处于良好状态。
2、确认吊卡是否选择正确。
3、根据管子的规格和长度选取相应的卡瓦。
4、检查游动滑车是否对准。
5、确认是否备有充足的螺纹脂。
6、大钳锤线要与大钳平面成90度角。
7、确认是否备有扭矩监控设备。
8、确认显示数是扭矩还是载荷。
9、在吊至平台之前，管子在管架上卸下母螺纹护丝。

下井作业：

* 下井

1、推荐使用引扣器。
2、应将带公螺纹护丝的管子用吊索从管架吊至钻机的坡板，吊管时应把母扣部位吊起，确保吊卡安全卡死。
3、去掉公螺纹护丝。
4、用刷子对螺纹和密封面表面涂抹螺纹脂，拧接用螺　纹脂Bestolife2000，公头涂抹螺纹脂，必须覆盖螺纹全长。
5、对扣时，小心下放管子，应垂直对扣。
6、拧接中调整夹紧力以避免夹扁接箍。

* 上扣

1、仔细观察管子晃动情况，当与下面接头对中时开始 拧紧。
2、上扣扭矩

Running down hole:

* Important

1. Max quantity of tubes on the rack shall not exceed 5 layers.
2. Battens should be laid between layers.
3. Please handle with protectors while moving or using tubes.
4. Tubes should be picked up or lowered with care.

* Preparation

1. Check Make sure all tools for running are in place and in good condition.
2. Check whether the elevator is proper.
3. Choose proper slips according to the specification and length of tube.
4. Check whether the traveling block has been aligned.
5. Make sure there is sufficient thread compound.
6. The angle between the plumb line and the plane of tongs should be 90 degrees.
7. Make sure the torque monitor is standby.
8. Check whether the reading displayed is torque or load.
9. Demount the box thread protector from the tube before the tube is lifted to the platform.

* Running Down Hole

1. Application of stabbing pilot is recommended.
2. The tube with pin protector should be lifted from the crack to the slope board of the drill with a sling rope, and the box should be upward. Ensure the elevator is safely closed.
3. Remove the protector of the pin thread.
4. Apply the thread compound Bestolife2000 to the thread and seal with a brush, and compound shall cover the entire length of box thread.
5. Carefully lower the tube for stabbing, and stab vertically.
6. Adjust clamp force to avoid squashing the coupling.

* Makeup

1. Watch the swing of tube, and start tightening when coupling underneath is aligned.
2. Makeup torque

◆◆◆ SUPERMAX 推荐拧接力矩：
Recommended torque for SUPERMAX makeup:

规格(mm×mm) Specification (mm×mm)	名义重量(lb/ft) Nominal weight(lb/ft)	J55(ft-lb)			N80、L80-1(ft-lb)		
		最小 Minimum	最佳 Optimal	最大 Maximum	最小 Minimum	最佳 Optimal	最大 Maximum
60.32×4.83	4.6	850	1050	1250	950	1200	1400
73.02×5.51	6.4	1300	1600	2000	1400	1700	2100
88.9×6.45	9.2	1800	2300	2700	2000	2500	3000
114.3×6.88	12.6	2500	3000	3500	2700	3200	3700

◆◆◆ SUPERMAX -TS 推荐拧接力矩：
Recommended torque for SUPERMAX-TS makeup:

规格(mm × mm) Specification (mm×mm)	名义重量(lb/ft) Nominal weight(lb/ft)	J55(ft-lb)			N80、L80-1(ft-lb)		
		最小 Minimum	最佳 Optimal	最大 Maximum	最小 Minimum	最佳 Optimal	最大 Maximum
73.02 × 5.51	6.4	1600	1800	2200	1800	2000	2400
88.9 × 6.45	9.2	2800	3200	3600	3000	2400	3800
114.3 × 5.69	10.5	3300	3700	4100	3500	3900	4300

注:1 对于特别间隙的接箍，减小最大扭矩的5%。2 如果有扭矩表，开始上扣用高速档，快达到最佳扭矩时，采用低速档。 3 前十个管子，检查上扣位置，对于SUPERMAX-TS来说，由于有扭矩台肩，当碰到台肩时扭矩会骤然增大，前十个管子要注意观察扭矩曲线的拐点。4 对于SUPERMAX接箍顶端应该达到或超过三角形底边，如果没有过，增加扭矩达到三角形底边。 5 天气变化，由于螺纹脂摩擦因素，扭矩可能有所偏离。

Note: 1 for couplings of special clearance, decrease the max torque by 5%. 2 if torque gauge is available, it is possible to start with high speed and switch to low speed when torque approaches the optimal. 3 for the first 10 tubes, check the makeup position. For SUPERMAX-TS, the torque will increase sharply when contacting the shoulders, so attention should be paid to the inflexion point of the torque curve. 5 weather change may result in torque deviation due to fiction of thread compound.

提升作业：

* 准备情况
1、同下井准备情况。
2、摆放立根木质底座是否到位（根据API 5C1）。
3、放倒或者摆放立根前，螺纹护丝清理干净。

* 卸扣
1、固定大钳要装在接箍上靠近下边的位置。
2、松开螺纹，注意不能让管子从接箍中突然跳出。
3、在管子从接箍中提出以前，应格外小心地松开全部螺纹。

* 存放
1、如果管子存放再井台上，应放在木质底座上。
2、管子提升出来后，检验应确保螺纹和密封面干净、无损伤，并应戴上干净公螺纹护丝。

Pickup Operation:

* Preparation
1. Same as that for down hole.
2. Check whether the wooden base is in place (as per API 5C1).
3. Clean thread protector before putting upside down or placing the stand.

* Breakout
1. Put the fixing tongs close to the lower part of the coupling.
2. Unlock the thread, and prevent the tube from jumping out of the coupling.
3. Carefully loosen all the threads first, and then take out the tube out of the coupling.

* Storage
1. If the tubes are stored on the platform of the well, wood bas should be placed underneath.
2. After the tube is pulled out, check it out to ensure the threads and the sealing faces remain clean and intact, and then put the clean protector on the pin thread.

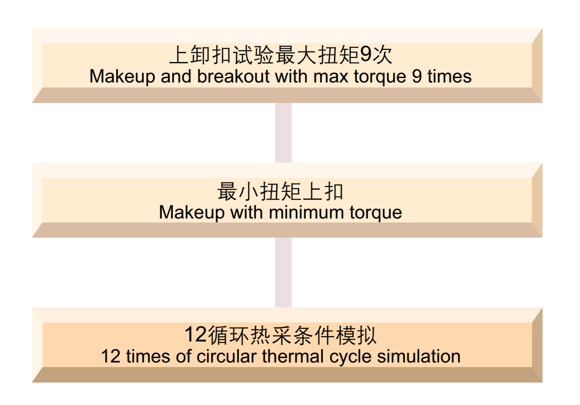
SUPERMAX 产品评估试验
Product evaluation test of SUPERMAX

60.33mm×4.83mm J55 热采井试验结果
Test result of 60.33mm×4.83mm J55 in thermal recovery well

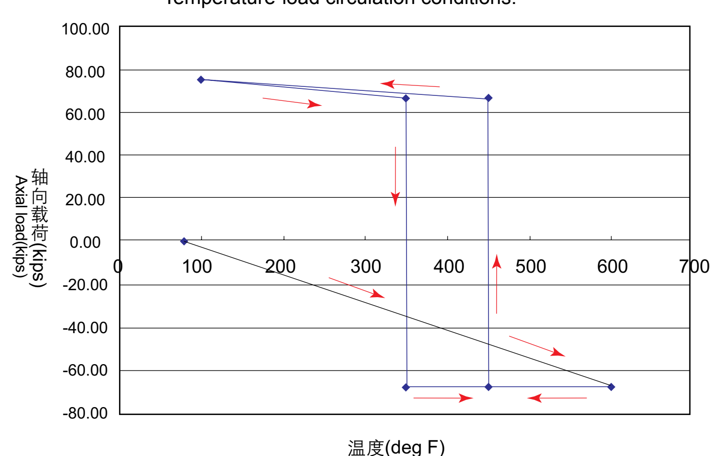
◆◆◆机械性能：
Mechanical performance:

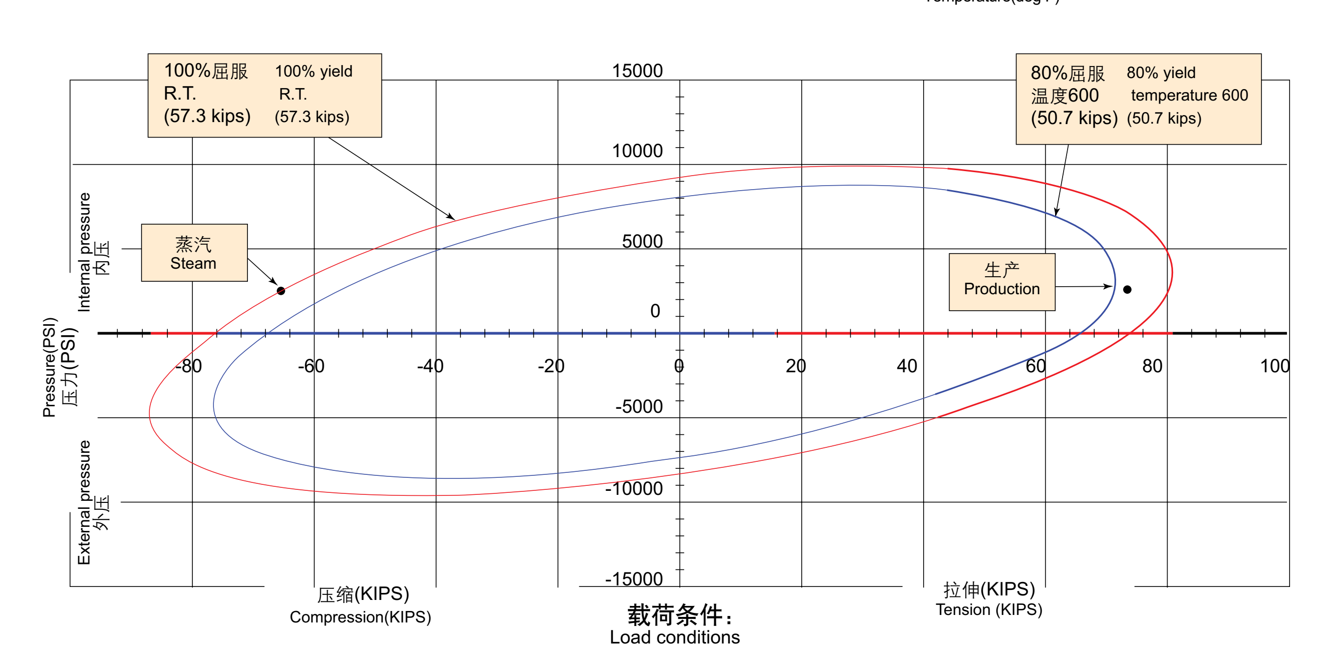
	屈服强度(psi) Yield strength(psi)	抗拉强度(psi) Tensile strength(psi)	伸长率(%) Elongation(%)
管体 Pipe body	57,600	72,120	38.5
接箍 Coupling	67,000	103,000	29.8

◆◆◆测试程序：
Test procedure:



◆◆◆温度－载荷循环条件：
Temperature-load circulation conditions:





73.02mm×5.51mm N80 试验结果
Test Result of 73.02mm×5.51mm N80

◆◆◆机械性能：
Mechanical performance:

	屈服强度(psi) Yield strength (psi)	抗拉强度(psi) Tensile strength(psi)	伸长率(%) Elongation(%)
管体 Pipe body	88,830	99,416	23.6
接箍 Coupling	90,300	106,500	28.9

◆◆◆螺纹过盈量：
Shrink Range:

试验号 Test No.	端 End	螺纹过盈量 Shrink range of thread	测验项目 Test item
1	A B	N H	应变片测试 Strain gange test
2	A B	N L	密封试验&拉伸试验 Seal test& tension bulge test
3	A B	N H	密封试验&爆破试验 Seal test& explosion bulge test
4	A B	L H	密封试验&压缩试验 Seal test& compression test
5	A B	L L	拉伸试验 Tension test

N-过盈量正常，L-过盈量小，H-过盈量大
N-shrink range normal, L-shrink range low, H-shrink range high

◆◆◆抗泄漏性能试验：
Leakage test:

组合力循环：水压34MPa　　保压时间从P1到P5
Combined force circulation: water pressure: 34MPa; dwell time: from P1 to P5

组合力循环：气压34MPa　　保压时间从P1到P5
Combined force circulation: air pressure: 34MPa; dwell time: from P1 to P5

组合力循环：水压55MPa　　保压时间从P6到P10
Combined force circulation: water pressure: 55MPa; dwell time: from P6 to P10

组合力循环：气压55MPa　　保压时间从P6到P10
Combined force circulation: air pressure: 55MPa; dwell time: from P6 to P10

整个试验中未发现有泄漏
No leakage is detected during the whole test.

◆◆◆上卸扣试验 & 抗泄漏试验试样 #2、#3、#1:
Makeup and breakout test & leakage test sample #2, #3, #1:

上卸扣试验：最大扭矩3次
Makeup and breakout test: 3 times the max torque

涂抹API5A2螺纹指，以2,200ft-1bs扭矩上扣后，烘烤(300F × 12小时)
Application of API5A2 thread compound, dry (300F×12hours) after making up with 2,200ft-1bs torque

4个系列的抗泄漏密封试验
4 series of leakage tes

涂抹Bestolife2000螺纹指，以2,200ft-lbs扭矩上扣后烘烤(300F × 12小时)
Application of Bestolife2000 thread compound, dry (300F×12hours) after making up with 2,200ft-1bs torque

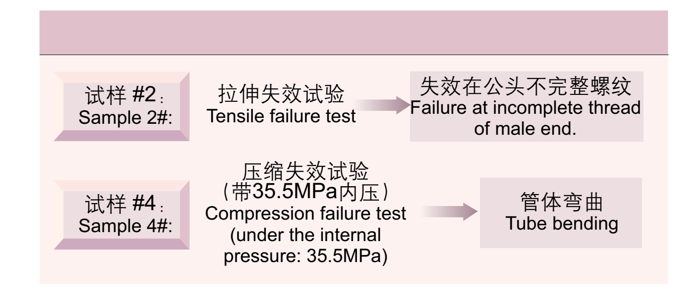
4个系列的抗泄漏密封试验
4 series of leakage test

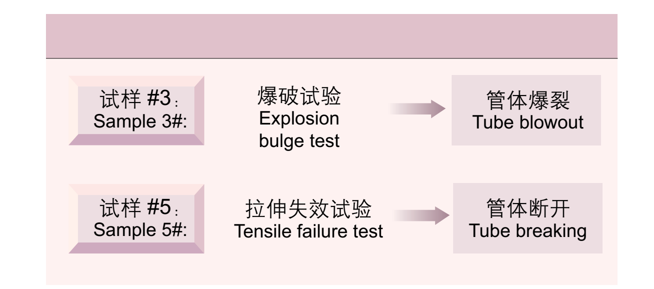
涂抹Bestolife2000螺纹指，以1,600ft-1bs扭矩上扣后烘烤(300F × 12小时)
Application of Bestolife2000 thread compound, dry (300F×12hours) after making up with 1,600ft-1bs torque

4个系列的抗泄漏密封试验
4 series of leakage test

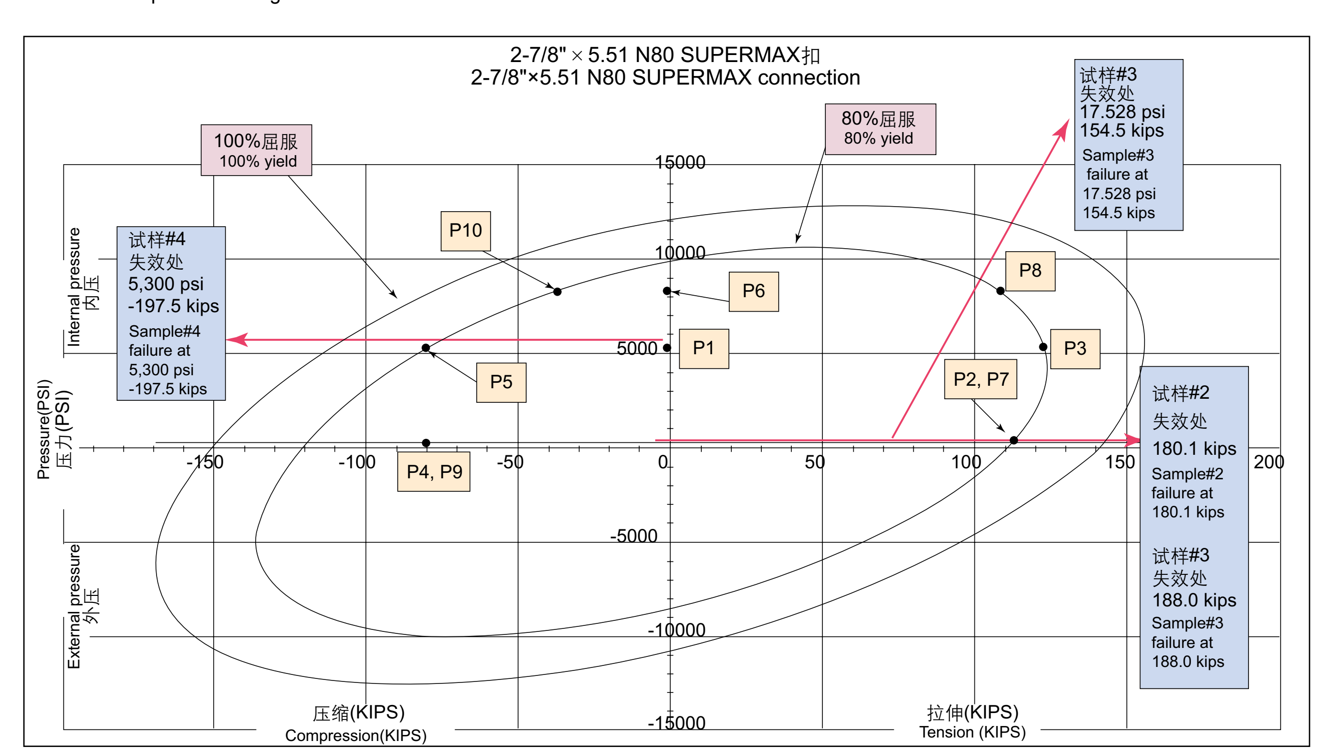
失效测试
Failure test

◆◆◆失效试验：
Failure test:





◆◆◆抗泄露试验的载荷点以及失效的实际载荷：
Load point of leakage test and actual load of failure:



◆◆◆失效测试结果：
Failure Test Result:



爆破
Explosion

拉伸至失效
Tension to failure

压缩至失效
Compression to failure

114.3mm×6.88mm J55 试验结果
Test Result of 114.3mm×6.88mm J55

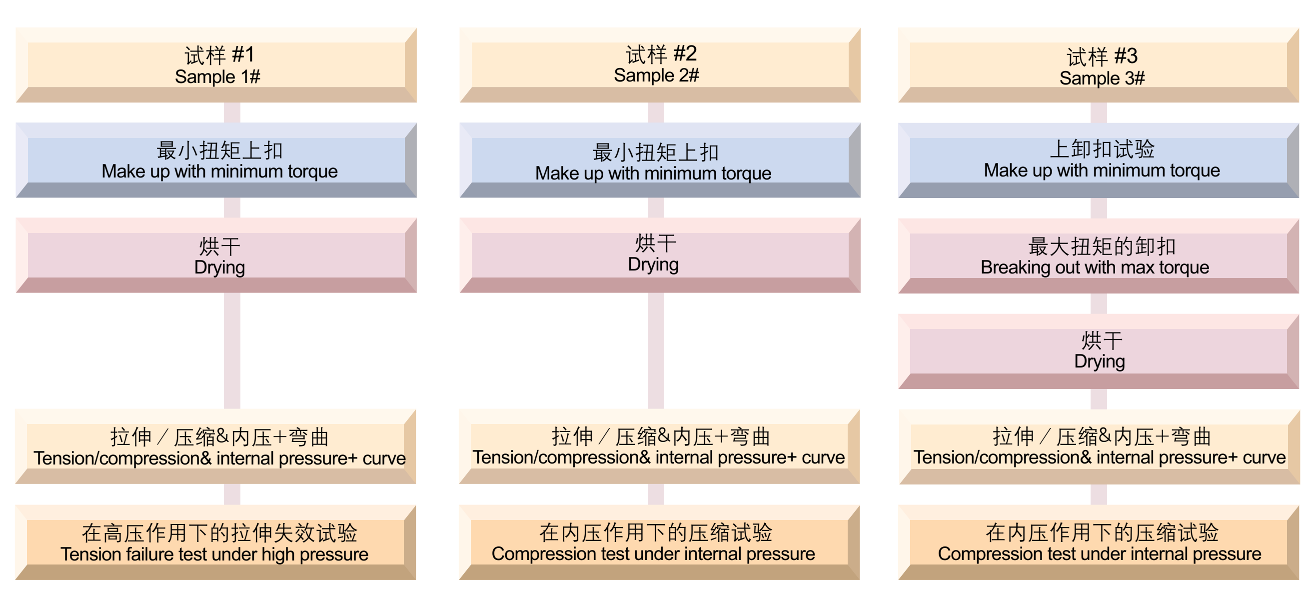
◆◆◆机械性能：
Mechanical performance:

	屈服强度(psi) Yield (psi)	抗拉强度(psi) Tension (psi)	伸长率(%) Elongation ratio(%)
管体 Tube body	64,300	109,800	21.1
接箍 Coupling	65,800	107,500	24.4

◆◆◆螺纹过盈量的组合：
Combination of Shrink Range of Thread:

公扣 Pin		母扣 Box		过盈量 Shrink range
序号 Sequence No.	中径 Intermediate diameter	序号 Sequence No.	中径 Intermediate diameter	
1A	最小 Minimum	1A	最大 Maximum	最小 Minimum
1B	最小 Minimum	1B	最大 Maximum	最小 Minimum
2A	最大 Maximum	2A	最小 Minimum	最大 Maximum
2B	最大 Maximum	2B	最小 Minimum	最大 Maximum
3A	最小 Minimum	3A	最大 Maximum	最小 Minimum
3B	最小 Minimum	3B	最大 Maximum	最小 Minimum

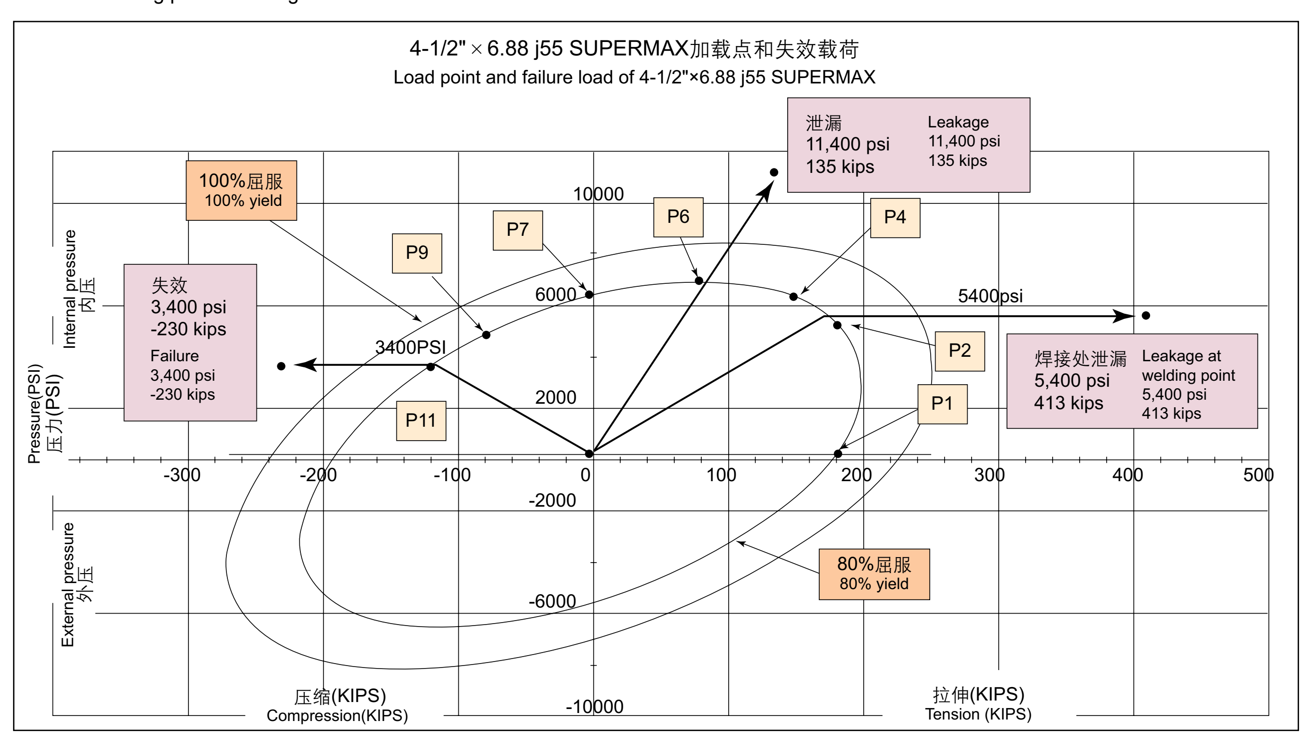
◆◆◆上卸扣 & 抗泄漏试验：
Makeup and breakout &leakage test:



◆◆◆**抗泄漏试验的加载顺序：**
Loading sequence for leakage test:

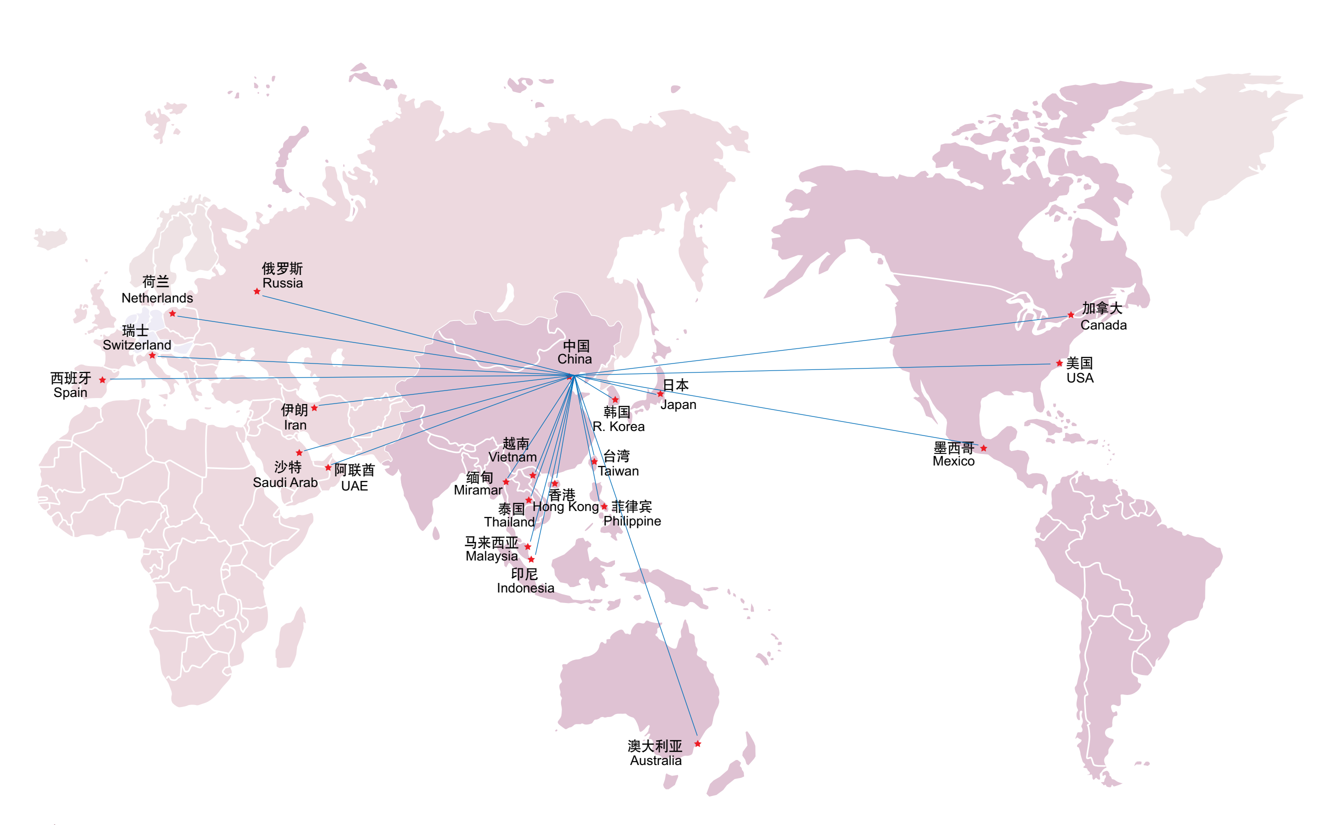
试验步骤号 Test sequence number.	加载点 Loading point	轴向载荷（kips） Axial load (kips)	压力（psi） Pressure (psi)	弯曲 Curve	保压时间 Dwell time
S1	P1	185	0	–	5
S2	P2	185	5.000	–	60
S3	P4	152	6.110	–	15
S4	P6	83	6.720	–	15
S5	P7	0	6.130	–	15
S6	P9	-76	4.660	–	15
S7	P11	-117	3.430	–	15
S8	P2	185	5.000	–	60
S9	P11	-117	3.430	–	15
S10	P9	-76	4.660	–	15
S11	P7	0	6.130	–	15
S12	P6	83	6.720	–	15
S13	P4	152	6.110	–	15
S14	P2	185	5.000	–	60
S15	P1	185	0	6 deg./100ft	5
S16	P2	185	5.000	6 deg./100ft	60
S17	P4	152	6.110	6 deg./100ft	15
S18	P6	83	6.720	6 deg./100ft	15
S19	P7	0	6.130	6 deg./100ft	15
S20	P9	-76	4.660	6 deg./100ft	15
S21	P11	-117	3.430	6 deg./100ft	15
S22	P2	185	5.000	6 deg./100ft	60

◆◆◆**抗泄漏试验的加载点和失效的实际载荷：**
Loading point in leakage test and actual load for failure:



使用业绩
Service reference:

扣型 Type of coupling	品规格和钢级 Specification & steel grade	用户 Customer	使用情况 Service condition
SUPERMAX	73.02mm × 5.51mm J55 88.9mm × 6.45mm J55	Aera Energy LLC (Shell & Mobil/Exxon JV)	137000米，最大井深3657米，主要使用在稠油热采 137000m, max well depth 3657m, mainly in thermal recovery of thick oil
SUPERMAX	73.02mm × 5.51mm J55	Seneca 能源公司 Seneca Energy Co.	9500m
SUPERMAX	73.02mm × 5.51mm L80-1	POL / Pakistan	4300m
SUPERMAX	88.9mm × 6.45mm J55	Husky / Alberta Canada	1200m
SUPERMAX & SUPERMAX-TS	114.3mm × 5.69mm J55	CNRL / Alberta Canada	SAGD井 SAGD well
SUPERMAX	73.02 mm × 5.51mm J55 88.9 mm × 6.45mm N80	SGD Resources / Permian Basin, Texas	35000m
SUPERMAX	73.02 mm × 5.51mm N80	中原油田/中国 Zhongyuan Oil Field/China	3300m
SUPERMAX	73.02 mm × 5.51mm J55	Victoria Petro. / Australia	2000m
SUPERMAX	114.3 mm × 7.37mm P110 / L80-1	ARC Resources / Canada	3600m
SUPERMAX	114.3 mm × 5.69mm K55	ARC Resources / Canada	2500m
SUPERMAX	88.9 mm × 6.45mm J55	Origin Energy / West Australia	2700m



附录

Annex

在文中有些数据采用了英制单位。英制与米制单位的换算系数如下

1 in=25.4 mm (准确值)
1 in2=645.16 mm2 (准确值)
1 ft=0.3048 m (准确值)
1 lb=0.454 kg
1 lb/ft= 1.4895 kg/m
1 psi=0.0703kg/cm2=0.006895MPa (应力)
1 ft-lb =1.355818 J (冲击功)
=1.355818 N • m (扭矩)

British system is applied to some of the data in the text.
Conversion between the British system and the Metric system are as follows:

1 in=25.4 mm (accurate value)
1 in2=645.16 mm2 (accurate value)
1 ft=0.3048 m (accuracy)
1 lb=0.454 kg
1 lb/ft= 1.4895 kg/m
1 psi=0.0703kg/cm2=0.006895MPa (stress)
1 ft-lb =1.355818 J (ballistic work)
=1.355818 N • m (torque)

宝山钢铁股份有限公司
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BAOSHAN IRON & STEEL CO., LTD.
http://www.baosteel.com

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